Appendix A [Corrected]

4. In the third column, remove lines 3–7

Issued on: October 30, 1991.

Editorial Note: For a related document, see the Corrections Section in this issue of the Federal Register.

Jerry Ralph Curry,

Administrator, National Highway Traffic Safety Administration.

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DEPARTMENT OF THE INTERIOR

Minerals Management Service

30 CFR Parts 202, 206, 210, and 212

RIN 1010-AB22

Revision of Geothermal Resources Valuation Regulations and Related Topics

AGENCY: Minerals Management Service (MMS), Interior.

ACTION: Final rule.

SUMMARY: The Minerals Management Service (MMS) is amending its regulations governing the valuation of Federal geothermal resources for the purposes of computing and paying royalties. The revised regulations describe the methods by which value is determined for all geothermal resources, including byproducts, produced from Federal leases.

EFFECTIVE DATE: January 1, 1992.

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SUPPLEMENTARY INFORMATION: The principal authors of this final rule are Charles Brook and Michael Throckmorton of the Royalty Valuation and Standards Division, Royalty Management Program, MMS, Lakewood, Colorado.

I. Introduction

On January 5, 1989, MMS published a notice in the Federal Register (54 FR 354) of a proposed rulemaking revising geothermal resources valuation regulations. This action was undertaken because the existing regulations at 30 CFR 206.350 and 206.351 provide only a list of general criteria that could be considered in establishing the value of geothermal production for royalty purposes; they do not give specific guidance or standards on how to apply the criteria. They particularly do not provide sufficiently specific standards for valuing those geothermal resources that are utilized directly by the lessee and consequently are not subject to a sales transaction on which to determine value.

To resolve some of the shortcomings of the regulations and to establish consistent valuation standards, MMS instituted various interpretative policies and procedures. Specific valuation procedures were developed within the context of, and consistent with, the existing regulations. Standards and procedures for valuing those geothermal resources used to generate electricity were set forth in the report "Valuation of Federal Geothermal Resources—Electrical Generation" issued to the public in October 1987 and revised June 1988. Standards and procedures for valuing those few geothermal resources used in direct utilization processes were issued to lessees on the basis of individual need.

The public comment period for the proposed rulemaking closed April 17, 1989, having been extended from March 6, 1989 (54 FR 9066, March 3, 1989), during which MMS received 15 responses to its request for comments. A public hearing was held on March 28, 1989, in Lakewood, Colorado, where 10 individuals made oral presentations.

The public comment period was reopened from May 7 to June 6, 1990, to obtain additional information on the rates of return applicable to capital investments in geothermal power projects (55 FR 18911, May 7, 1990, and 55 FR 20679, May 18, 1990). Additional comments on any other issues called for in the first notice of proposed rulemaking were also welcomed if new information had become available since the close of the initial comment period. Six comments were received during the second comment period; five addressed the rate of return issue and one addressed measurement standards.

After carefully considering all of the public comments received during the rulemaking process, MMS hereby adopts final regulations governing the valuation of geothermal resources from Federal leases.

II. Purpose and Background

The MMS is revising the current regulations governing the valuation of Federal geothermal resources to accomplish the following:

(a) Clarify existing valuation policy and standards as they apply to geothermal resources used for electrical generation;

(b) Provide clear standards for valuing geothermal resources used in direct utilization processes;

(c) Provide clear standards for valuing geothermal byproducts; and

(d) Provide industry and the public with a comprehensive and consistent geothermal valuation policy.

For the convenience of geothermal resources lessees, payors, and the public, the following chart summarizes the effects of these rules.

Regulation changes	Descriptions
I. *Title Revision:*	
Part 212:	
The title of subpart B is revised to read "Oil, Gas, and OCS Sulfur—General".	Retitled for consistency with the title of subpart B in other parts of MMS regulations.
II. *Removals:*	
Part 206:	
Sections 206.350 and 206.351 are removed from subpart H	These sections are replaced by new sections.
Part 210:	
Sections 210.350 and 210.351 are removed from subpart H	These sections are replaced by new sections.
Part 212:	
The authority citation under subpart B is removed	This is an administrative amendment because the authority citation is not required under the subpart.
III. *Additions:*	
Part 202:	
New §§ 202.350, 202.351, 202.352 and 202.353 are added to subpart H	These new sections provide geothermal resources valuation standards and procedures.
Part 206:	
New §§ 206.350, 206.351, 206.352, 206.353, 206.354, 206.355, 206.356, 206.357, and 206.358 are added to Subpart H.	These new sections provide geothermal resources valuation standards and procedures.

Regulation changes	Descriptions
Part 210:	
New §§ 210.350, 210.351, 210.352, 210.353, 210.354, and 210.355 are added to subpart H.	These new sections provide geothermal resources reporting standards and procedures.
Part 212:	
New §§ 212.350 and 212.351 are added to Subpart H	These new sections were added to provide geothermal resources recordkeeping standards and procedures.

This rule applies prospectively to production on and after the effective date specified in the **EFFECTIVE DATE** section of this preamble. It supersedes all existing geothermal resources valuation directives issued by MMS or its predecessor Agency, the U.S. Geological Survey. However, the general concepts and principles provided by this rule will be applied to geothermal value determinations currently pending before MMS unless these concepts and principles are specifically precluded from use by previously effective rules. Specific guidelines governing valuation and reporting requirements consistent with the new valuation regulations will be incorporated into a Geothermal Payor Handbook at a future date.

This rule applies only to the valuation, for royalty purposes, of geothermal resources produced from leases issued under the authority of the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001–1025).

Geothermal valuation standards—contained in part 206—are grouped according to how the geothermal resource is used: Electrical generation, direct utilization, and/or byproduct recovery. Valuation standards within each group are described according to the type of transaction under which the resource is disposed: Arm's-length sales, non-arm's-length sales, and dispositions not subject to a sales transaction—the so-called "no sales" dispositions where the resource is used directly by the lessee. Valuation standards are different for each group.

Geothermal resources are a concentration of the Earth's natural heat, or thermal energy. They provide a fundamental form of energy that can be used directly in any process requiring heat for operation. However, they must be used in some fashion, either by performing thermodynamic work or by transferring the heat to other mediums, to be of any benefit. Generally, the quality of the resource, primarily temperature, dictates the type of usage suitable to the resource. Higher-temperature geothermal resources are particularly suited to the generation of electricity; lower-temperature resources are suited to a wide variety of space heating and other direct utilization functions.

Unlike other energy resources—such as oil, gas, and coal—geothermal resources must be used immediately after production and in close proximity to the production well because of the rapid dissipation of heat in the surface environment. Accordingly, markets for geothermal resources are restricted to the fields in which they are produced and to the type of usage for which they are suited. Therefore, geothermal resources do not have a truly open market.

Development of geothermal resources has been aided in the last few years by implementation of the Public Utilities Regulatory Policies Act of 1978, 16 U.S.C. 2601 (PURPA). This legislation permits the ownership and operation of electrical powerplants by nonutility companies and requires public utilities to purchase the electricity from these powerplants at avoided costs. As a result, several geothermal developers have constructed their own geothermal powerplants to use resources that otherwise might be bypassed.

One of the most controversial issues in this rulemaking was the method of valuing those resources used by the lessee in its own powerplant for the generation and sale of electricity. On the basis of past practice and policy, MMS proposed the geothermal netback valuation procedure. The MMS also described and requested comments on the proportion-of-profits method proposed by industry as an alternative to the netback procedure. Following review of the public comments and consideration of the pros and cons of each valuation method, MMS is adopting the netback procedure as its valuation policy. Because of public comments, MMS is deleting the weighted-average method as the first valuation benchmark for non-arm's-length and no sales dispositions under proposed paragraph (c) of § 206.352. As a result, the valuation criteria will emphasize the netback procedure. Paragraph (c) is revised to address valuation under non-arm's-length sales and a new paragraph (d) is added to address valuation under no sales situations. The rationale for these decisions is discussed in the following section.

III. Response to Comments Requested on Specific Issues

In the preamble of the proposed rulemaking (54 FR 354, January 5, 1989), MMS requested comments on a variety of issues, some of which were conceptual and others of which were related to specific sections of the regulations. Consequently, most of the comments received were confined to the stated issues. The issues are restated below in question format and addressed in the order they appeared in the preamble; the applicable sections of the proposed regulations are given, where appropriate, to facilitate reference. Comments received during the second comment period are introduced in the appropriate issues only where they differ substantially from initial comments or add new insight to the issue.

Comments were received from industry, industry trade organizations (both geothermal and electrical utility), a Federal Agency, States, a city, private interest owners, and other interested parties. Respondents were generally divided, with industry on one side of the issues and States and royalty interest owners on the other side.

As a general matter, MMS is adopting the proposed provisions regarding geothermal resources disposed of pursuant to arm's-length transactions: with some exceptions, value will be determined by the lessee's gross proceeds. Most of the comments addressed below relate to non-arm's-length and "no sales" situations.

(a) Section 202.353 Measurement Standards for Reporting and Paying Royalties

What should be the proper reporting units for direct utilization resources when measurements are made on a volume (gallonage) basis (proposed § 202.353(b))?

Two comments were received regarding reporting units. One respondent suggested that reporting units be consistent with a heat measurement because heat is the resource being used; either millions of Btu's (MMBtu) or therms (100,000 Btu) were recommended for reporting geothermal production. The other

respondent recommended that reporting units be based on whatever unit of measurement and royalty is based on, consistent with other mineral commodities. For most direct-use geothermal resources, this unit would be MMBtu's rather than hundreds of gallons because all current, and likely most future, direct-use valuations will be based on the alternative-fuels approach.

MMS Response: The MMS agrees that reporting units should be the same as those on which royalty is based. Reporting standards for electrical-generation resources already allow for multiple reporting units; doing the same for direct-use resources would have little impact on accounting procedures and would simplify the audit process, the Bureau of Land Management's (BLM) production verification process, and the lessee's reporting. Accordingly, paragraph (b) of § 202.353, governing the measurement standards for reporting and paying royalties on direct-use geothermal resources, is modified in the final rule to provide for multiple reporting units.

(b) Section 206.352, Valuation Standards for Electrical Generation

(1) Is the weighted-average method proposed as the first non-arm's-length and "no sales" valuation benchmark (proposed § 206.352(c)(1)(i)) appropriate for valuing geothermal resources?

Six respondents representing States, private interest owners, and an industry trade organization, commented on the weighted-average method as a benchmark for determining geothermal values in non-arm's-length and no sales situations; five were opposed to the concept and one (the industry trade organization) suggested it could be used but with modification. In addition, one speaker at the public hearing argued against the weighted-average method.

Value under the proposed weighted-average method would have been determined by the weighted average of the gross proceeds paid or received by the lessee under its own arm's-length contracts for the purchase or sale of similar quantities of like-quality geothermal resources in the same field. Most of the comments opposing the weighted-average benchmark focused on the inclusion of antiquated sales contracts that do not reflect current market values. Thus, the weighted-average method would tend to skew geothermal values toward obsolete, lower prices. One commenter indicated that the method is administratively unrealistic because of the varying vintages and pricing schemes of arm's-length contracts.

Some commenters questioned whether the method was needed or appropriate because of its infrequent use. Other respondents recommended that the weighted-average method be abandoned as a benchmark and replaced with the netback procedure.

The one commenter supporting the weighted-average method suggested that it may be useful in certain circumstances, but did not elaborate. This commenter also suggested incorporating an efficiency factor to adjust resource values for different powerplant efficiencies. (One other commenter also suggested factoring in plant efficiencies, but as an incentive for efficient operation.) A timeframe during which a weighted-average value would be determined was also suggested.

MMS Response: The valuation for royalty purposes of Federal mineral resources disposed of under non-arm's-length sales contracts or without a sales contract has long been a contentious issue. With the promulgation of new oil and gas valuation regulations effective March 1, 1988 (53 FR 1184 and 53 FR 1230, January 15, 1988), MMS instituted a hierarchical system that embodies a series of methods, or "benchmarks," ranked in succeeding order of use for valuing these resources. A benchmark system was also adopted in the new coal valuation regulations effective March 1, 1989 (54 FR 1492, January 13, 1989). The determination of value under the oil, gas, and coal benchmark systems is based first on a comparison of the lessee's gross proceeds derived under its non-arm's-length contract with the gross proceeds established under comparable arm's-length transactions occurring in the same field or area. Various criteria were established to evaluate the comparability of an arm's-length transaction. Other valuation methods in order of priority are used in the absence of comparable arm's-length transactions.

The MMS also proposed a benchmark system for valuing geothermal resources not sold under arm's-length contracts (i.e., geothermal resources disposed under non-arm's-length and "no sales" conditions), with the weighted-average method as the first benchmark (proposed § 206.352(c)(1)(i)). As proposed, the weighted average would have been based on the gross proceeds paid or received by the lessee under its own arm's-length contracts for the purchase or sale of similar quantities of like-quality geothermal resources in the same field. Contract vintages or other comparability criteria were not considered, due in part to MMS's belief that this benchmark would be seldom used because of its "similar quantity" restriction.

The MMS now agrees with the majority of the commenters that the weighted-average method as proposed is not a satisfactory method for establishing reasonable value. In addition to the concerns expressed in the public comments regarding contract vintages, MMS is concerned that the proceeds paid or received by the lessee under only its own arm's-length contracts for the purchase or sale of similar quantities of like-quality resources in the same field may not reflect reasonable value because of the variety of resource characteristics and usages and the multitude of powerplant designs and efficiencies. Nonetheless, prices established in arm's-length contracts may reflect at least a local market and could be practical gauges for defining comparable value. Thus, weighted averages of arm's-length gross proceeds could provide reasonable resource values in certain situations.

As previously indicated, § 206.352(c) is revised to address valuation only of those electrical generation resources disposed under non-arm's-length contracts. The MMS believes that the gross proceeds received under a lessee's non-arm's-length contract must be considered in any valuation scheme. Accordingly, the first benchmark in § 206.352(c)(1)(i) is revised to establish the gross proceeds received by the lessee under its non-arm's-length contract as value for royalty purposes provided those gross proceeds are not less than the gross proceeds derived from or paid under the lowest-priced available comparable arm's-length contract for sales of geothermal resources to the lessee-affiliate's same powerplant (the "minimum value"). If the gross proceeds under the lessee's non-arm's-length contract are less than the minimum value, or if there are no available comparable arm's-length contracts, value will be determined by the weighted average of the gross proceeds established under arm's-length contracts for the sales of significant quantities of geothermal resources to the same powerplant.

For purposes of this benchmark, available contracts means contracts in the possession of the lessee, the lessee's affiliate, or MMS. Because the lessee and powerplant operator are affiliated in non-arm's-length transactions, the arm's-length contracts used for comparative purposes will involve only sellers unaffiliated with the lessee and the powerplant operator. The comparability of an arm's-length contract would be determined by its

similarity to the non-arm's-length contract, considering such factors as time of execution, duration, terms, quality of the geothermal resource, volume, dedication to the same powerplant, and other factors that may be appropriate to reflect the value of the resource. Comparability of volumes is particularly necessary to avoid the possibility that purchases of small quantities of resources may unduly affect the valuation. While the term "significant quantities" is not readily quantifiable, it is intended to exclude unusual purchases of small volumes that may unduly skew the value.

Only those geothermal resources utilized in the same powerplant are compared because other powerplants in the field or area may, and often do, have different conversion efficiencies and different sales prices for the generated electricity. (The lessee's arm's-length sales of any excess geothermal resources from the same lease to another powerplant operator would not necessarily be considered a measure of value for the same reasons.) Conversion efficiencies and electricity sales prices will in part dictate what the purchaser is willing to pay for geothermal resources. Thus, the same resource may have different values to different powerplant operators.

The MMS still believes this first valuation benchmark, even though in revised form, will seldom be used because there likely will be few instances where the lessee's powerplant affiliate will need to purchase geothermal resources to operate the powerplant. Nonetheless, such a scenario is possible and must be considered.

If no comparable arm's-length contracts exist, or if there are no arm's-length contracts for sales of significant quantities of geothermal resources to the same powerplant, then value will be established by the second benchmark, the netback procedure in § 206.352(c)(1)(ii). The MMS believes this will be the most widely used method for valuing geothermal resources disposed of under non-arm's-length contracts. The netback procedure is designated as the second valuation benchmark to clarify its order of usage. (The netback procedure is discussed further below.) "A value determined by any other reasonable valuation method approved by MMS" is redesignated as the third benchmark in § 206.352(c)(1)(iii); this provision is intended to be used only in those instances where the lessee can demonstrate that the first two valuation benchmarks are unworkable.

Paragraph (c) of § 206.352 is further modified by reassigning valuation standards for those geothermal resources not subject to a sales transaction but instead used by the lessee in its own powerplant for the generation and sale of electricity—the "no sales" resources—to a new paragraph (d); succeeding paragraphs are recodified accordingly. This revision is made to distinguish "no sales" valuations as a separate category with specific valuation standards.

Valuation criteria for "no sales" resources are established in a benchmark system similar to that for non-arm's-length sales valuations, with the first benchmark again considering prices established in arm's-length sales contracts as a measure of value. Although the lessee generally will use only its own geothermal resources to operate the powerplant, there may be some situations where the lessee purchases additional resources from other producers for powerplant consumption. These other purchases, if arm's-length, would provide a logical basis for establishing value. Accordingly, the first valuation benchmark for "no sales" geothermal resources at paragraph (d)(1)(i) is revised to consider the weighted average of the gross proceeds established in arm's-length contracts for the purchase of significant quantities of geothermal resources to operate the lessee's powerplant. The acceptability of the gross proceeds under the arm's-length contract(s) to value the lessee's production will be determined in large part by the volume and quality of resources purchased compared to that of the lessee's own production; other contract elements such as a time of execution, duration, terms, and other factors affecting the disposition or value of the resource will also be considered. Thus, for example, prices established in a contract entered into after commencement of power generation, for a short period of time, and/or for small volumes of resource would not necessarily be considered in determining value. On the other hand, prices established in a contract (or contracts) executed before or at the time of commencement of power generation, for the life of the electricity sales contract, and for volumes approaching or exceeding those of the lessee's own production would be considered in determining value. The MMS reserves the right, however, to determine whether the arm's-length prices or gross proceeds are reasonable.

As with the first benchmark under the non-arm's-length valuations, MMS believes that the first "no sales" valuation benchmark will have limited application. Again, however, such a scenario is possible and should be the first choice for valuation.

The second benchmark under the revised "no sales" valuation standards in § 206.352(d)(1)(ii) is the netback procedure. The MMS anticipates that this procedure will be used to value most geothermal resources used by lessees in their own powerplant. "Other reasonable valuation methods approved by MMS" is assigned as a third benchmark in § 206.352(d)(1)(iii), with the intent that this benchmark would be used only when the lessee demonstrates that the first two benchmarks are unworkable.

(2) Should the "area" concept for comparative valuation in non-arm's length and "no sales" situations be abandoned?

No comments specifically addressed abandonment of the "area" concept. Commenters generally recognized the highly variable nature of geothermal resources.

MMS Response: In the preamble of the proposed rulemaking, MMS concluded that a non-arm's-length or "no sales" valuation based on comparison to contract sales outside of any given field was inappropriate because of the highly variable nature of geothermal resources. Accordingly, the "area" concept, in which sales of like-quality resources in nearby fields or areas would be considered for valuing lease production, was rejected. Upon further consideration, MMS believes that comparison of contract sales even within a given field also may not be an appropriate method for determining value of lease production in non-arm's-length and "no sales" situations. As discussed above, the same resource may have different values to different purchasers because of different powerplant efficiencies and electricity sales prices. Accordingly, MMS has further restricted the use of other sales transactions for comparative valuation purposes to those contracts supplying resources to the lessee's or lessee's power-generating affiliate's powerplant.

(3) Is the concept of not using prices established in other lessee's contracts and the rejection of the majority price approach appropriate for geothermal valuation?

The issue of not using prices established in other lessee's contracts to determine value under the weighted-average benchmark was indirectly addressed by two commenters, both within the context of rejecting the weighted-average method. The

commenters agreed with MMS's belief that other lessees' contracts should not be considered because of differing prices and powerplant efficiencies. They also declared that the subject lessee's other contracts should not be considered for the same reasons. One commenter said that prices established in arm's-length contracts might be used for valuation purposes, but that such a valuation method should be the second benchmark after the netback procedure.

Only one comment was received regarding the rejection of the majority price approach due to substitution of the weighted-average method. That commenter suggested that the majority price approach may be useful in certain limited situations and that the lessee should be allowed to demonstrate to MMS that such an approach is appropriate.

MMS Response: The MMS has addressed the applicability of contract prices in its discussion of the weighted-average method. The MMS maintains that prices established in arm's-length contracts are valid measures of value if certain qualifications are met. Because the use of arm's-length contracts is greatly restricted, a majority price approach becomes impractical for determining value.

(4) Should the netback valuation procedure (proposed §§ 206.353 and 206.354) be modified and, if so, how?

Most of the comments received on the netback procedure during the first comment period were philosophical arguments addressing its suitability as a valuation method. Twelve respondents representing the views of States, industry, and private interest owners commented either directly or indirectly on the netback procedure's propriety. Several respondents merely stated a position, with nonindustry commenters favoring the netback procedure and most of the industry commenters opposing it. Aside from comments on the appropriate rate of return, which is addressed later, few respondents suggested specific modifications to the netback procedure. In comments received during the second comment period, however, five industry respondents collectively advocated certain specific modifications to the netback procedure, which, together with an increase in the rate of return, would result in a resource value during the term of a project that would be equivalent to the value calculated by the proportion-of-profits method. Comments arguing the suitability of the netback procedure will be reviewed first, followed by comments addressing specific modifications to the procedure.

Most industry respondents, particularly those representing integrated resource and power producers, strongly opposed the netback procedure. Much of the testimony presented at the public hearing was in opposition to the netback procedure. Several reasons, which were itemized and discussed in one industry trade organization response, were given for the netback procedure's inapplicability for valuing geothermal resources. The MMS will respond to each reason individually.

The commenter's first reason is that the netback approach is conceptually inappropriate because it is not responsive to the economic realities of the geothermal industry and does not recognize all costs associated with enhancement of the resource downstream of the wellhead. The commenter stated further that the value of the geothermal resource is dependent on the economics of transforming heat into usable work or another form of energy; e.g., electricity. In establishing an acceptable economic price for sales of either the resource or electricity, it was alleged that the geothermal producer would take into account his costs of developing the resource and transporting it to its point of utilization. The commenter argued that because geothermal resources are usually in marketable condition at the wellhead, each cost element of the geothermal utilization process downstream of the wellhead would add value to the resource. Accordingly, each cost element downstream of the wellhead would be part of the total processing cost and should be deductible.

MMS Response: A netback approach is a recognized method of deriving the value of mineral resources for royalty purposes. The MMS disagrees that the netback procedure is conceptually inappropriate for valuing geothermal resources used to generate electricity. The electricity generated by geothermal powerplants is a form of energy converted from the naturally occurring thermal energy of the resource (first law of thermodynamics). The conversion is accomplished by the equipment of the powerplant facility. Under the netback procedure, the value of the geothermal resource (thermal energy) is determined by subtracting the costs of generating and transmitting electricity from the revenue received for the sale of the electricity (that is, the value of the electricity). Thus, the resource value tracks the value of the converted form of energy (electricity) derived from use of the resource. The cost deductions also allow for a return on the lessee's invested capital. The MMS believes, in these respects, that the netback procedure is indeed responsive to the economic realities of the geothermal power industry.

Based on MMS's experience, cost deductions allowed under the netback procedure can exceed two-thirds of the value of electricity, thus deriving a geothermal resource value that is less than one-third of the electricity value. (As discussed later, the two-thirds and 50 percent threshold limits on generating and transmission deductions, respectively, are not being adopted. The two-thirds cost deduction cited here is used only for comparative purposes.) The MMS is aware of arm's-length contracts that establish the value of the geothermal resource at approximately one-half the value of the electricity. The MMS is also aware of revenue sharing agreements in which the geothermal owner receives a percentage of the total revenue accruing to the geothermal developer for sale of electricity (that is, a percentage of the full value of the electricity without any deductions); the revenue sharing rates in these agreements are greater than the royalty rates provided in Federal geothermal leases. The MMS therefore believes that the values derived by the netback procedure are reasonable in view of actual industry practice.

The MMS disagrees that all costs downstream of the wellhead enhance the value of the resource, especially those costs associated with transporting the resource from the wellhead to the point of utilization. The MMS maintains that the enhancement of the resource's value occurs in the energy conversion process performed by the powerplant and in the transmission line operations. The MMS believes that the netback procedure adequately accounts for the costs associated with these value-enhancing operations. Furthermore, the lessee is ultimately responsible under the terms of the Geothermal Resources Lease to avoid waste of the resource; this responsibility is reported at 43 CFR 3262.1(b)(1). "Waste" is defined at 43 CFR 3260.0-5(c)(4) as "the inefficient transmission of geothermal energy from the source (wellhead) to point of utilization."

The lessee also has the right under the Geothermal Resources Lease to site a powerplant (or other utilization facility) on the Federal lease. Inasmuch as placement of a powerplant is largely a matter of the lessee's choice, MMS does not believe that the royalty value of a Federal geothermal resource should suffer because the lessee or its affiliate chooses a powerplant site distant from

the lease. The MMS contends that the costs of gathering and transportation should not be allowable expenses unless the resource is made more valuable by transporting it to a powerplant located off the lease. To the contrary, it can be argued that a geothermal resource becomes increasingly less valuable as it is transported farther from the wellhead due to the continued dissipation of heat and resultant loss of enthalpy. How the value of the resource is increased by transportation or how transportation is considered part of the utilization process has not been clearly demonstrated to MMS. Accordingly, MMS maintains its position that all costs of gathering and transporting the geothermal resource from the wellhead to the point of utilization are to be borne solely by the lessee/operator or resource user, unless the lessee can demonstrate that value is actually enhanced by the gathering and/or transportation operations.

The second argument presented by the commenter is that the netback procedure undercompensates for the full cost of capital invested in electrical generation and transmission facilities. The commenter explained that substantial investment in the form of debt and equity is incurred in these facilities prior to commercial operations and before receipt of revenue and creation of value. Thus, the treatment of return under the netback procedure results in a mismatch between the structure of the actual costs of capital and allowed deductions.

MMS Response: The MMS agrees that debt and equity costs associated with power generation and transmission facilities are part of the lessee's actual capital costs to install those facilities. The regulations governing allowable capital investments under the netback procedure (appearing at paragraphs (b)(2) of §§ 206.353 and 206.354) are intended to reflect inclusion of debt and equity costs. A list of specific allowable capital items and costs will be addressed in the Geothermal Payor Handbook.

In a related issue, MMS would like to clarify its position on deductions for real estate purchases and acquisitions of easements or rights-of-way to site geothermal utilization facilities. Real estate purchases were specifically excluded as allowable capital investments in the proposed rule (§§ 206.353(b)(2) and 206.354(b)(2)). Lessees have requested a deduction for the purchase of a powerplant site. Real estate is not a depreciable asset and MMS therefore does not allow real estate purchases as part of the capital investment for depreciation purposes. Also, as previously indicated, the Geothermal Resources Lease confers to the lessee the right to construct and operate all facilities necessary to produce and use the resource and to use as much of the surface of the leased land as is necessary for these functions. The MMS therefore would normally view the purchase of an off-lease site for a geothermal powerplant as an unnecessary cost.

On the other hand, MMS will recognize the costs of acquiring easements or rights-of-way and the costs of renting or leasing powerplant sites and transmission corridors as acceptable deductions. The method of incorporating these costs into the transmission line and generating cost rate calculations would depend on their accounting disposition. For example, if an easement or right-of-way is acquired by a lump-sum payment at the beginning of operations, the cost would be amortized over the life of the project and the declining balance entered as a component in computing the lessee's annual return on capital investment. If the sites are rented or leased, or otherwise held by periodic payments, the payments would be included as part of the lessee's operating and maintenance expenses.

The MMS recognizes that the purchase of land for a powerplant is a capital cost to the lessee. Given the duality of treatment between real estate purchases and the costs of renting, leasing, and acquiring easements or rights-of-way, and the consideration that land is not a depreciable asset, MMS has determined that real estate purchases may be at least eligible for a return on investment. In practice, real estate costs would be added to the annual undepreciated capital investment to compute the return on investment factor under the depreciation method of calculating capital costs; real estate costs would be included as part of the total capital investment under the return-on-capital-investment method. To be eligible for the deduction, the purchased land must not be on the subject, or another, Federal geothermal lease and the lessee must demonstrate to MMS's satisfaction that the siting of the geothermal powerplant off the lease was necessary. A return on real estate costs will not be allowed in situations where the lessee could have located the powerplant on the lease but chose to locate elsewhere. Only the portion of the real estate costs attributable and allocable to the land on which the powerplant or transmission facilities are actually located will be eligible for a return. The lessee must obtain approval from MMS prior to taking a return on real estate purchases.

The language excluding real estate purchases from the lessee's allowable capital costs in §§ 206.353(b)(2) and 206.354(b)(2) is deleted in the final rule and new language is added to allow consideration of a return on real estate purchases. The handling of real estate costs in the netback deduction calculations, as well as costs associated with renting and leasing of land and acquisition of easements or rights-of-way, will be addressed in greater detail in the Geothermal Payor Handbook. The terminology "fixed assets" in these paragraphs is changed to "depreciable assets" to clarify that allowable capital costs (or investments) are generally those associated with tangible, depreciable equipment and facilities.

The third reason arguing the unsuitability of the netback procedure revolved around the potential for subtractive error in the value calculation. The commenter explained that small errors in determining allowable capital costs would expand to large errors in calculating the resource value because of the proportionately large investment in the powerplant compared to the value of the resource.

MMS Response: The implication here is that the regulations may not accurately reflect the lessee's economic costs. The MMS recognizes that the netback procedure, or any other method that attempts to value a resource on the basis of the price of a commodity or service derived from use of the resource, can potentially result in errors if the regulations do not accurately recognize and allow for the lessee's economic costs. The MMS believes that the netback procedure described in these rules accurately reflects the lessee's costs of converting geothermal resources into electricity, and thereby is an accurate determinant of the resource's value. The MMS also believes, as it explains throughout this preamble, that the netback valuation accurately reflects economic conditions in the geothermal industry. Therefore, MMS has attempted to avoid the risk of subtractive error.

The commenter's fourth point is that the netback does not give an appropriate treatment of the rate of return. The commenter asserted that deductions for return on investments in the netback calculation do not match the actual costs of capital for reasons of both timing and magnitude. Also, the rate of return under the netback disproportionately favors the geothermal field economics by allowing the internal rate of return on the

investment in the resource (that is, cost to bring the resource into production) to exceed greatly the internal rate of return on the investment in power production.

MMS Response: These comments were made from the perspective of the integrated geothermal producers and power generators, who view the capital risks of financing a geothermal project as being spread evenly over the resource development and power generation (and transmission) components of the project as a whole. Accordingly, capital invested in development of the geothermal field would receive the same rate of return as the capital invested in the powerplant and transmission line. The MMS does not believe that economic rationale compels the equation of field economics to powerplant (and transmission) economics. Because the characteristics of the producible resource determine the design and operation of the power conversion equipment, a powerplant is not installed until sufficient reserves have been discovered—and tested—to supply the powerplant at the capacity for which it was designed. Furthermore, most independent (nonutility) geothermal powerplant operators have long-term (10- to 30-year) electricity sales agreements with utilities. It is reasonable to assume that operators anticipate a sufficient supply of geothermal resources to meet the delivery commitments of the electricity sales agreements and thus justify the financial investment in the powerplant. The MMS has determined, however, that the rate of return specified in the proposed rulemaking (proposed §§ 206.353(b)(2)(v) and 206.354(b)(2)(v)) does not adequately account for the return on investments required for geothermal power projects. This issue is discussed in greater detail later in the preamble.

The fifth comment argues that the threshold limits placed on the generating and transmission deductions (two-thirds and 50 percent, respectively) are arbitrary and do not reflect real costs (proposed §§ 206.354(c)(1) and 206.353(c)(1)).

MMS Response: The MMS recognizes that generating and transmission costs may exceed the threshold limits. The limits were not meant as absolute restrictions but rather were intended to alert MMS to possible excessive deductions. The MMS has determined that it can monitor excessive deductions by other methods. The threshold limits therefore are deleted in the final rule. However, MMS will not allow the deductions to reduce the value of the geothermal resource to zero. (The MMS is protected from accepting no royalties by the minimum royalty provisions of the lease and by § 202.352 of the final rule.) The lessee will be expected to provide all relevant information upon request to support its generating and transmission deductions.

The final comment is that geothermal values determined under the netback procedure are disproportionately greater (by a factor of two to three) than the market value of other fuels used for the generation of a comparable amount of electricity. Also, netback values escalate at higher rates than those projected for other fuels.

MMS Response: This argument was based on calculated fuel costs of 2.55 cents/kWh and 1.8 cents/kWh for natural gas- and coal-fired powerplants, respectively. Geothermal values calculated under the netback procedure were cited to range from 4 cents/kWh to 6 cents/kWh. The heat rate for natural gas was given as 8,500 Btu/kWh and that for coal as 12,000 Btu/kWh. These heat rates are for modern turbine generators that are designed to operate at steam pressures 10 to 30 times greater than steam pressures available to geothermal powerplants. By comparison, geothermal powerplants have heat rates of about 18,000 Btu/kWh to 25,000 Btu/kWh.

The MMS questions the validity of comparing fuel costs for fossil fuel-fired powerplants with those for geothermal powerplants because of different design and operating characteristics and different heat rates. Nevertheless, geothermal values computed by the netback procedure can be shown to be comparable to hydrocarbon fuel values if heat rates for geothermal powerplants are considered. For example, using a typical heat rate for a dual-flash powerplant of 24,500 Btu/kWh, a geothermal netback value of 5 cents/kWh yields an equivalent natural gas value of $2.04/MMBtu, which is comparable to current (November 1990) spot-gas prices for deliveries to pipelines. The 5 cents/kWh netback value yields an equivalent oil value of $11.84/bbl, assuming the average heat content of a barrel of oil is 5.8 MMBtu.

The MMS can find no valid basis for comparing the escalation of netback values with projected fuel prices. Forecasting future oil and gas prices is an inexact science at best, as demonstrated by the rapid rise of oil prices in the late 1970's and their unexpected collapse in 1986.

In general, opponents of the netback procedure contend that the derived royalty values are much greater than could possibly be negotiated between a geothermal buyer and a seller under arm's-length conditions.

MMS Response: The MMS disagrees with this conclusion. As discussed above, netback values appear to be within the range of prices established in arm's-length contracts and value bases established in certain revenue sharing agreements currently existing in the geothermal industry.

In comments submitted during both comment periods, one industry trade organization, representing the collective viewpoints of several integrated resource and power producers, suggested the following modifications to the netback procedure:

(i) The first suggestion is that deductions should be allowed for both depreciation and interest on a constant investment base to better reflect the actual costs of the amounts of debt and equity invested in geothermal power facilities.

MMS Response: The MMS believes that its method of calculating deductions on the undepreciated capital investment balance adequately accounts for the lessee's actual generating and transportation costs. The MMS also believes that its method better reflects an actual internal rate of return earned on the power generating and transmission operations. Calculation of depreciation and interest on the basis of a constant investment would overstate the lessee's capital cost.

(ii) The commenter next suggested that all costs related to the delivery of the geothermal resource—including gathering and reinjection systems, downhole pumps for binary powerplants, and other field equipment—should be included in the generating costs to determine value at the wellhead. That is, the point of royalty valuation should be at the wellhead and all costs subsequent to extraction of the resource should be deductible.

MMS Response: The MMS's long-standing position is that all costs related to field operations are to be borne solely by the lessee. These operations include gathering and reinjection as required by regulations at 43 CFR part 3260. The MMS's position on gathering and transportation of the geothermal resource from the wellhead to the point of utilization is discussed above. Lease terms allow the lessee to reinject unused geothermal resources and geothermal effluent without payment of royalties (unless the lessee receives compensation for these operations); deductions cannot be applied against nonroyalty-bearing production or operations that are field related. The

MMS agrees that certain downhole pump operations are related to the power conversion cycle in binary powerplants. Accordingly, the regulation at paragraph (b)(2) of § 206.354 addressing allowable capital costs is revised to allow inclusion of those downhole pump costs that are directly attributable and allocable to the design requirements of the power conversion cycle in determining generating deductions. It will be the responsibility of the lessee to accurately allocate, subject to audit and adjustment, only that part of downhole pump cost attributable to the power conversion process. Costs associated with extraction of the resource are not allowed in determining generating deductions.

(iii) The third suggestion was to eliminate the threshold limits on the generating and transmission deductions. An annual limit of 80 to 85 percent on all costs, instead of separate caps on the generating and transmission deductions, was recommended.

MMS Response: As discussed above, the threshold limits have been deleted.

(iv) The commenter next argued that if the deduction limits are retained, which in effect establish a floor value for the resource, then a ceiling value should also be established, especially in view of the fact that the netback value approaches the electricity sales price near the end of the depreciation period. A resource value cap of 40 percent of gross proceeds was recommended.

MMS Response: The MMS can find no justifiable reason to place a cap on the value of the resource.

(v) The commenter next suggested that reclamation costs associated with the powerplant, including costs of dismantling the powerplant and restoring the lease, should be an allowable deduction in the netback procedure because such costs are an integral part of operating the powerplant.

MMS Response: The MMS recognizes that the costs of dismantling, decommissioning, or abandoning the powerplant and/or transmission line are indeed part of the lessee's costs associated with those facilities. However, these are future costs that are not easily estimated tens of years in advance, and in fact may not even occur at the end of a given project if the facilities are converted to other uses. Nevertheless, it is MMS' intent to recognize powerplant and transmission-line dismantlement costs when those costs actually occur. This will be accomplished by allowing the lessee a one-time refund of royalties equal to the royalty amount of actual dismantlement costs in excess of actual salvage income (i.e., royalty rate times the amount of dismantlement costs in excess of salvage income); the refund should be requested at the completion of the dismantlement and salvage operations and include all supporting documentation. New paragraphs (f) are added to §§ 206.353 and 206.354 to address refunds for dismantlement costs. Because of this treatment of dismantlement costs, salvage value (usually deducted from gross investment prior to calculating depreciation) will also be recognized at the time of plant dismantlement. Thus, depreciation will be calculated on the full gross investment, and the allowed return will be applied to that gross investment less accumulated depreciation.

The costs of lease restoration, however, will not be recognized by MMS as an allowable cost in the netback valuation. Restoration of Federal leases is a specific requirement of the lessee under section 14 of the Geothermal Resources Lease. The MMS considers lease restoration to be a function of operating the lease rather than generating electricity; costs associated with lease operations are not shared by the Government.

(vi) The cost of purchased electricity to operate well pumps and other field equipment when those operations are an inherent part of the power generating process was also recommended as an allowable deduction in the netback procedure.

MMS Response: As discussed above, MMS recognizes that certain equipment associated with the generating process may be located in the field or well and has revised the regulations accordingly. Such equipment may include wellhead separators and downhole pumps. Thus, any costs associated with the operation and maintenance of this equipment would be included in determining generating deductions. However, the lessee must properly allocate the costs between resource extraction functions and power generation processes and use only those costs attributable to the power generation process in its deduction calculations.

(vii) The commenter next prescribed that the generating deduction (actually the generating cost rate) should be based on net output (tailgate electricity) rather than gross generator output (proposed § 206.354(b)(1)). The commenter reasoned that internal power demands ("parasitic" electricity) should not figure into the deduction calculation because if a comparable amount of electricity were purchased, it would be considered a deductible generating expense. The commenter concludes that real revenues would then be comparable to real generating costs. In comments submitted during the second comment period, the respondent advocated the use of delivered electricity to calculate both transmission and generating deductions.

MMS Response: The MMS agrees that the costs of generating parasitic electricity is an inherent part of powerplant operation and therefore should be compensated. Computing the generating cost rates on the basis of net powerplant output (tailgate electricity) rather than gross generator output accomplishes this goal. Accordingly, regulations at paragraphs (b)(1) and (b)(3) of § 206.354 are revised by replacing "generated electricity" with "plant tailgate electricity." The definition of "generated electricity" in § 206.351 is deleted in the final rule.

However, a caveat must be added to the definition of "plant tailgate electricity" to protect the Government from sharing in the cost of generating any electricity that is returned to the lease for lease operations. To reiterate, deductions cannot be applied against nonroyalty-bearing production or operations that are field related. Although electricity returned to the lease does not produce revenue, it cannot be viewed the same as parasitic electricity, which is used in, and is necessary to, the energy conversion process. Rather, it is electricity that normally would be purchased by the lessee for field operations and thus would not be compensated by the Federal lessor. It is also electricity that otherwise would be available for sale. Accordingly, the definition of "plant tailgate electricity" in § 206.351 is modified in the final rule to be inclusive of electricity generated by the powerplant and returned to the lease for lease operations.

The MMS disagrees that generating deductions should be calculated on delivered electricity. The use of delivered electricity to calculate generating cost rates would overstate generating costs and ultimately generating deductions.

(viii) If the netback procedure is adopted, the commenter recommended tha specific standards be developed that would authorize the lessee to use an alternate valuation approach in certain circumstances. The following standard for triggering this exception was proposed:

> The value calculated from the netback must allow money invested in power production and transmission to earn an internal rate of return equal to 1.5 times S&P's [Standard and Poor's] BBB bond rate as

calculated from the project's discounted cash flows.

This standard would be used as a test to determine whether the netback value reflects the lessee's internal rate of return on investment in power production and transmission as measured by discounted cash flows. If the netback approach fails this test, it was suggested that a different methodology (namely the proportion-of-profits method) should be used to value the resource.

MMS Response: The intent of the return on investment is to recognize the cost of funds necessary to finance the construction of the powerplant and transmission line. The return on investment is not intended to reflect a discounted cash-flow or other rate-of-return analysis used by a lessee to evaluate a particular project. Rather, it is intended to reflect a reasonable cost of capital. The MMS perceives no requirement for ensuring that the netback value reflects the lessee's actual internal rate of return used for a variety of corporate purposes. The MMS has determined, however, that the rate of return used in the netback calculations should be 2 times Standard and Poor's industrial BBB bond rate. The rationale for this decision is discussed later.

(ix) The commenter next argued that capacity payments should not be included in the measure of gross proceeds from which the netback deductions are subtracted because capacity payments are considered a function of the powerplant design and performance characteristics rather than the resource. The commenter urged that at least that part of capacity payments made during scheduled downtime or forced outages not be included in the lessee's gross proceeds for the sale of electricity.

MMS Response: Capacity payments, which are further addressed in question 8 below, were discussed in the preamble of the proposed rules (54 FR 357) within the context of valuing the lessee's electricity. As described in that preamble, rules implementing PURPA (for example, 18 CFR 292.304 (1984)) require electric utilities to purchase available electricity from qualifying powerplants at rates equal to the purchasing utility's "avoided costs." Avoided costs are defined at 18 CFR 292.101(b)(6) (1984) as the incremental costs to an electric utility of electric energy or capacity, or both, which the utility would otherwise generate itself or purchase from another source. Avoided costs are generally represented by two payments: an energy payment and a capacity payment. The energy payment represents the purchasing utility's avoided costs of fuels used to operate conventional powerplants. The capacity payment represents the utility's avoided costs associated with capital investments in powerplants and transmission systems needed to meet customer delivery demands or utility loan requirements. In effect, capacity payments are made in fulfillment of the lessee's contractual obligation to deliver a minimum amount of electricity to the purchasing utility. Because capacity payments are a component of avoided costs, MMS maintains its position that capacity payments are part of the total value of the electricity and therefore are part of the lessee's gross proceeds received for the sale of electricity.

The MMS disagrees that capacity payments are a function of powerplant design and performance because these features are determined by resource characteristics. Simply stated, the quality and volume of geothermal production dictate powerplant design; any degradation or improvement of resource characteristics will affect powerplant performance.

Capacity payments are generally established yearly and paid in equal monthly installments; scheduled downtimes and brief periods of forced outages are usually taken into account. Accordingly, MMS finds no reason to discount capacity payments during these periods. If the downtime or forced outage lasts an entire production month, however, MMS would consider an exception, assuming that geothermal production is either shut in and/or determined by BLM not to be royalty-bearing.

(x) The commenter finally suggested that a return on funds expended prior to commercial operation of a facility should be allowed as part of the capital investment base. The commenter reasoned that carrying costs incurred during the construction phase of a project, which can include service payments for both debt and equity, are an integral part of the lessee's invested capital because investments do not produce income until a powerplant is operational. The commenter suggested that the depreciable investment base be calculated by summing the annual investments adjusted by an annual rate of return based on a weighted-average cost of capital for the geothermal industry.

MMS Response: Interest charges incurred by a lessee on capital borrowed to finance construction of a project, also known as interest during construction (IDC), are currently recognized by MMS as part of the depreciable capital investment base on which the transmission and generating cost rates are calculated. Service payments on equity investments are also considered part of the depreciable capital investment. However, the interest and equity payments must be the actual amounts clearly attributable and allocable to the powerplant or transmission line for which the money was borrowed, and must be incurred during the planning and construction phases of those facilities; these payments also must be verifiable upon audit. In those cases where IDC or equity payments cannot be attributed to a particular powerplant or transmission line, MMS may, at its discretion, approve an amount provided the lessee submits a written request and provides adequate documentation supporting the proposed amount.

(5) What should be the proper rate of return under the netback valuation procedure and what sources of information are publicly available to support any suggested alternative rates of return?

The MMS proposed a rate of return of 1.5 times Standard and Poor's industrial BBB bond rate at §§ 206.353(b)(2)(v) and 206.354(b)(2)(v) in the proposed rulemaking. Six respondents commented on the proposed rate of return during the first comment period. Five commenters representing States and private interest owners opposed using the factor of 1.5 to calculate the rate of return, citing the lack of rationale and inconsistency with valuation of other minerals (oil, gas, and coal) as reasons; they generally preferred a straight Standard and Poor's industrial BBB bond rate as the rate of return. Two of these commenters suggested that the Standard and Poor's industrial BBB rate may be liberal because the element of risk is so low for companies constructing geothermal-driven PURPA plants that loans are made on the basis of nonrecourse financing. On the other hand, an industry trade organization argued that the proposed rate of return of 1.5 times Standard and Poor's industrial BBB rate was insufficient to cover the actual costs of generating and transmitting electricity. (Industry generally shares this viewpoint as indicated by testimony at the public hearing.)

Five respondents commented on the rate-of-return issue during the second comment period; four represented industry and one represented a State. The State commenter again opposed any rate of return greater than Standard and Poor's industrial BBB bond rate, but did not present any factual basis for its position.

Industry commenters collectively endorsed a rate of return equal to the weighted-average cost of debt and equity—also referred to as the weighted-average cost of capital—for integrated geothermal resource and power developers. An industry trade organization, which represented the views of the other industry commenters, observed that the weighted-average cost of debt and equity was dependent upon (1) the initial capitalization (the proportion of debt to equity), (2) cost of debt, and (3) return on (or cost of) equity. The commenter indicated that capitalization of geothermal projects varied in the extreme, ranging from 100 percent equity financed to 100 percent debt financed; representative debt to equity ratios were estimated to range from 50/50 to 70/30. Long-term debt during the mid-1980's, when many of the existing geothermal projects were developed, was available at interest rates of 11 to 12 percent. Letters from investment banking firms, submitted with the commenter's analysis, indicated that the pre-tax return on equity needed to attract investments in geothermal power projects during the mid-1980's was in excess of 25 percent and as high as 40 percent; the commenter asserted that the typical equity return was between 30 and 35 percent. By assuming representative debt to equity ratios of 50/50 to 70/30, an average interest rate of 11.5 percent on long-term debt, and an average return on equity of 32.5 percent, the commenter calculated that the weighted-average cost of capital (debt and equity) for the geothermal industry ranged between 17.8 percent and 22.0 percent. The commenter noted that this analysis yielded a rate of return approximately 2 times Standard and Poor's industrial BBB bond rate. The commenter then proposed to avoid the multiplier and establish a fixed rate of 20 percent.

MMS Response: As previously discussed, the return on invested capital is intended to compensate the lessee for its costs necessary to finance a powerplant and transmission line. The MMS recognizes that geothermal powerplant operations may contain a certain element of risk attributable to the continued producibility of a viable resource, and that geothermal powerplants therefore may incur relatively greater financing costs than conventionally fueled powerplants.

Industry's proposal to fix the rate of return at 20 percent will not accurately reflect the cost of capital in view of the rise and fall of interest rates over time. A fixed rate of return would penalize lessees during periods of higher interest rates and subsidize them during periods of lower interest rates.

In previous product valuation rulemakings (for example, oil and gas valuation rulemakings at 53 FR 1213 and 1262, January 15, 1988), MMS determined that the rate of return on depreciable capital investment should be closely associated with the cost of money necessary for construction of transportation and processing facilities. The MMS concluded that a corporate bond rate adequately considered the risks involved in such ventures and believed that the Standard and Poor's industrial BBB bond rate represented a rational choice among the available alternatives. This conclusion was viewed primarily in terms of long-term debt; the impact of equity financing was unknown. During the mid-1980's (1983 to 1987), Standard and Poor's industrial BBB bond rate ranged from a low of about 9.5 percent to a high of about 15 percent; the average was about 12 percent, which is correlative with the interest rates on long-term debt reported in the geothermal industry's comments. However, considering that equity financing may account for 50 percent or more of the capital invested in a powerplant and transmission line, and that the return on equity may be as high as 40 percent, the weighted-average cost of capital to finance geothermal power projects is easily greater than a straight corporate bond rate. For example, if half of a project was financed by equity investment at an expected rate of return of 40 percent and the remaining half by long-term debt at an interest rate of 12 percent, the total cost of financing the project would be about 26 percent. This amount, as well as the weighted-average rates of return calculated by the industry commenter, is within the range of Standard and Poor's industrial BBB bond rates increased by a factor of two. The MMS finds that a rate of return of 2 times Standard and Poor's industrial BBB bond rate is a reasonable representative cost of capital for financing geothermal power projects; this rate of return therefore is adopted in the final rule for use in determining transmission line and generating cost rates under the netback procedure.

(6) Is the proportion-of-profits method appropriate for geothermal resource valuation?

Like the controversy surrounding the netback valuation procedure, the proportion-of-profits method also generated divisive argument; most of industry favored the exclusive use of the proportion-of-profits method, whereas nonindustry opposed its use.

Briefly summarized, value of the geothermal resource under the proportion-of-profits method is the proportional share of the geothermal project's net operating income attributable to the geothermal field. The proportional share is based on the ratio of capital invested in developing the geothermal field to capital invested in the entire geothermal project (field development, powerplant construction, and transmission line installment). (See proposed rulemaking at 54 FR 357, January 5, 1988, for further details.)

Five respondents representing States and private interest owners opposed the proportion-of-profits method. One commenter pointed out that the proportion-of-profits method is similar to Internal Revenue Service's (IRS) proportional profits method used in depletion calculations for Federal income tax, except the Federal depletion calculation uses a ratio of mining costs over total costs of producing the mineral resource instead of the ratio of investment in the geothermal field over total investment in the geothermal field, powerplant, and transmission line used under the proportion-of-profits method. This commenter suggested that the use of investments rather than costs seems to be chosen so that most of the net income is allocated to the powerplant rather than the geothermal field, thus reducing the value attributable to the geothermal resource. The commenter also noted that IRS's proportional profits method is seldom used because the IRS is uncomfortable with the idea that a ratio of one cost over total costs is a reliable method of determining how profit should be allocated between production and post production processes.

One commenter criticized the basic concept of the proportion-of-profits method—the greater the costs attributable to a component of the project, such as electrical generation or field production, the greater the value attributable to that component of the project—as being incorrect. Rather, a lower cost of producing the resource should correspond to a higher value of that resource. The concept that rates of return on powerplant and transmission line investments should equal those for field-development investments was further criticized for the following reasons:

(i) The rates of return expected on investments in the production of geothermal resources are greater than those expected on investments in electrical generation. Accordingly, a greater proportionate cash flow should be allocated to the geothermal field.

which in effect would increase the value of the geothermal resource; and

(ii) If generating plant capital costs are financed with nonrecourse financing, the only real plant capital investment is the interest actually paid. This would lower the cash flow for the plant and increase the cash flow for the geothermal field, thereby increasing the value of the resource.

It was also argued that the proportion-of-profits method merely derives a unit amount (dollars per kilowatthour) of the costs of producing the resource, not the resource's value.

Finally, two of the commenters advised that audits would be more difficult for proportion-of-profits valuations than for netback valuations.

Five respondents representing industry and industry trade organizations strongly advocated the proportion-of-profits method. Several speakers at the public hearing also testified in favor of the proportion-of-profits method. The proportion-of-profits method is premised on the allocation of net operating income (or actual cash flow) to each component of an integrated geothermal project (production field, powerplant, and transmission line) based on the relative proportion of the capital invested in each component. The need for determining an appropriate proxy rate of return and depreciation schedule (as under the netback procedure) is eliminated. The specific rate of return earned by the project is whatever the actual cash flows produce. The rate of return attributable to the resource investment is the same as that attributable to the other component investments.

Because field investment costs and operating expenses are considered in the proportion-of-profits method, the proponents argue that the resource value derived by this method would reflect a fair and reasonable arm's-length negotiated price. Under the recommended *proportion-of-profits* formula, the geothermal resource value would be no less than the field operating expenses (net operating income was defined as never being less than zero). The commenter concluded that inclusion of field investments and operating expenses in the value determination would encourage efficient operation.

In summary, supporters of the proportion-of-profits method believe that it calculates a more accurate value of the resource while providing the Government with a fair return commensurate with the intent of Congress in passing the Geothermal Steam Act of 1970.

MMS Response: The proportion-of-profits method and the netback procedure are similar in that both derive a value of the geothermal resource by taking into account the lessee's expenses and investments. (In fact, the proportion-of-profits method can be viewed as a form of netback calculation, with the allowed rate of return varying according to the return to the project.) The MMS has determined that the two methods differ primarily in their handling of the lessee's return on invested capital. Under the netback procedure, the return on investment is intended to reflect a reasonable cost of capital; the cost of capital is expressed by the rate of return, determined to be 2 times Standard and Poor's industrial BBB bond rate as previously discussed. Under the proportion-of-profits method, the lessee's return on investment is not explicitly stated but is determined inherently by the electricity sales price (or revenue received) and ultimately by the company's profitability. In application, the proportion-of-profits method confuses investment profitability with a company's minimum return on investment necessary to cover the cost of capital.

As discussed above, the return on investment under the netback procedure is intended to recognize the lessee's cost of funds necessary to finance the powerplant and transmission line. Capital costs must be accurately estimated because, if the cost of capital is overestimated, the generating and transmission deductions would be overstated and royalty values would be understated. The MMS does not view the proportion-of-profits method as an accurate determinant of capital cost because it reflects a company's profitability rather than the industry's cost of capital.

Also, as previously stated, MMS does not find compelling the argument that the rate of return on investment attributable to resource development must be the same as that attributable to other components of the geothermal project. In addition, MMS is not comfortable using a different rate of return for each project.

In view of MMS's knowledge of actual pricing and revenue sharing provisions in arm's-length contracts, MMS does not believe that the values derived by the proportion-of-profits method would reflect prices negotiated in arm's-length contracts any better than those values derived by the netback procedure. In summary, none of the comments received convinced MMS that the proportion-of-profits method derived a more accurate value of the geothermal resource compared to the netback procedure.

(7) Should an alternative fuels approach be used to value "no sales" geothermal resources (for both electrical generation and direct utilization)? If so, how should the value of the alternative fuels be determined?

Value of the geothermal resource under the alternative fuels approach is determined by the Btu value (or cost) of the conventional fuel (oil, gas, coal, wood, etc.) displaced by use of the geothermal resource.

Six commenters addressed the alternative fuels approach for valuation; all were within the context of geothermal power generation. None of the commenters completely endorsed the method. Three commenters directly opposed the method, and three others suggested that the valuation of the alternative fuel alone would create insurmountable administrative and auditing difficulties.

MMS Response: The MMS agrees that an alternative fuel approach is inappropriate for valuing geothermal resources used to generate electricity. Considering that electricity is a form of energy converted from the thermal energy of the resource, MMS believes that a netback valuation based on the value of the geothermally generated electricity is a more proper approach. However, MMS is adopting an alternative fuels method to value "no sales" geothermal resources used for direct utilization. (See § 206.355(c)(1)(ii) or (d)(1)(ii) of this rule for further details.)

No comments were received on how the alternative fuel should be valued. The MMS has determined that the value of the alternative fuel should be the price that the lessee would otherwise pay for purchasing the particular fuel.

(8) Should capacity payments be included in the value of electricity?

Four comments addressed the capacity payment issue; three were from States and private interest representatives and one was from an industry trade organization. The nonindustry respondents favored the inclusion of capacity payments in the value of electricity. One respondent suggested that if capacity payments were considered payments for the capital cost of the powerplant (industry's position), then a deduction for capital investments should be disallowed; that is, only plant operating expenses would constitute the generating deduction. Industry opposed the inclusion of capacity payments, claiming that they are a function of

powerplant design rather than the resource.

Within the context of capacity payments, MMS also requested information as to what extent geothermal production is shut in during forced outages or scheduled powerplant downtimes but capacity payments are still received. No statistical data were received, although MMS understands that it is general industry practice to shut in or throttle back wells as soon as practical during unscheduled outages ("trips" in industry terms) as well as scheduled downtimes. One nonindustry respondent commented that capacity payments received during the outages, whether scheduled or unscheduled, should still be included as part of the value of electricity because they are established yearly with a certain amount of downtime factored in.

MMS Response: Capacity payments were discussed in question 4(ix) above. The MMS has determined that capacity payments are a part of the electricity sales value.

(9) How should electricity be valued when the geothermal lessee is also the power generating utility?

In situations where the lessee is also a utility, MMS suggested that the value of the electricity might be established as the weighted average of the utility's customer rates. No comments were received on this or any alternative method of valuing electricity for application of the netback valuation procedure under these unique lessee-utility situations.

MMS Response: Due to their rarity, MMS will review these situations individually to determine the proper methods of valuing the electricity and/or the resource as allowed under the benchmark systems.

(10) What criteria should be used to value the geothermal resource when the lessee has an arm's-length generating agreement with a third party but receives revenue from the sale of electricity (that is, the lessee sells electricity generated by an unaffiliated party using the lessee's geothermal resource)?

The only comment received on this question implied that the contract with the powerplant owner would establish a generating-cost deduction, which could be used in valuing the resource.

MMS Response: The MMS does not foresee such situations occurring. The MMS believes that the regulations in § 206.352(d) are sufficiently flexible to allow individual value determinations in these situations.

(11) Should there be a one-time election to use the return-on-capital-investment method for valuation under the netback procedure (proposed §§ 206.353(b)(2)(iv)(B) and 206.354(b)(2)(iv)(B)) for those facilities placed into service before March 1, 1988?

A return-on-capital-investment is one of two alternative methods proposed to determine the lessee's costs associated with capital investment in the powerplant and transmission line; the other method involves depreciation and a return on undepreciated capital investment. One commenter (from industry) favored having the method available for use for facilities placed into service prior to March 1, 1988, and one commenter (from nonindustry) disagreed with its use prior to March 1, 1988; neither commenter provided substantive reasons for their position.

MMS Response: The MMS first adopted the return-on-capital-investment method (as an alternative to the depreciation method) with the promulgation of new transportation and processing allowance regulations for oil and gas valuation effective March 1, 1988 (53 FR 1184 and 53 FR 1230, January 15, 1988). Those regulations provide that the return-on-capital-investment method will apply only to facilities first placed into service after March 1, 1988 (30 CFR 206.157(b)(2)(iv)(B) and 206.159(b)(2)(iv)(B) (1990). For consistency with those regulations, MMS also adopted the return-on-capital-investment method for determining transmission and generating cost rates/deductions under the netback procedure for powerplants first placed into service on or after March 1, 1988 (MMS report "Valuation of Federal Geothermal Resources—Electrical Generation," June 1988, pages 7 and 13). The MMS can find no compelling reason to allow application of the return-on-capital-investment method solely for geothermal resource valuation in a manner inconsistent with the intent of the regulations introducing the policy.

(12) Should depreciation (under the netback procedure) be based on a fixed time period commensurate with the first electricity sales agreement (proposed §§ 206.353(b)(2)(iv)(A) and 206.354(b)(2)(iv)(A)) or some other reasonable time period, and what conditions or considerations might extend or decrease the depreciation period?

Two State commenters expressed concern that a depreciation schedule tied to the life of an electricity sales contract may unduly entitle the lessee to an accelerated depreciation, especially when the expected useful life of the generating and transmission facilities is longer than the sales contract. They recommended that depreciation be based on the useful life of the capital assets (powerplant and transmission line) rather than a contract term.

An industry trade organization recommended that adjustment to the depreciation time period be allowed when (1) the actual performance of the geothermal reservoir is not able to support the optimal performance of the powerplant as originally projected or (2) the powerplant becomes technologically obsolete within a very short period of time, and upgrading requires substantial infusions of new capital investment. The commenter recommended that the lessee be allowed to use either a straight-line or accelerated depreciation method, presumably as circumstances dictate.

One industry respondent expressed concern that the straight-line depreciation method does not correctly allocate the cost of geothermal powerplants over the life of the project (or contract). The straight-line depreciation method was considered inapplicable because geothermal powerplants must rely on a local source of geothermal production, which cannot be supplemented by other fuel sources. Accordingly, costs tend to be understated in the early years when plant capacities are high and overstated in the later years as the annual amount of generation declines. This commenter recommended a depletion-accounting method to allocate capital costs over the primary term of the electricity sales contract. The depletion rate would be adjusted yearly on the basis of the forecasted amount of geothermal resource remaining to the termination of the sales contract.

MMS Response: After reviewing the above comments, MMS has determined that the proposed depreciation method is proper for netback valuation. A depreciation period based on the term of the electricity sales agreement avoids guessing about the life of the geothermal reserves as well as the useful life of the capital assets. The final rules, however, provide for alternative depreciation periods upon proper showing by the lessee and acceptance by MMS. This exception is intended to be used primarily in situations where the lessee/powerplant operator (such as a municipal utility) does not have an electricity sales contract on which to base a depreciation period, or in other unusual or extraordinary situations currently not anticipated by MMS. Assuming that the netback procedure is applicable in these cases, a depreciation schedule based on the expected life of the capital assets, or some other period

acceptable to MMS, would be considered.

The MMS has determined that a straight-line depreciation method is more administratively manageable than other depreciation methods and therefore is subject to less interpretation and possible misuse. The MMS believes that accelerated depreciation based on a depletion-accounting method is inappropriate, because this method was devised for tax purposes and is not consistent with MMS's intent to account for the lessee's actual generating and transmission costs.

The MMS recognizes that subsequent expenditures for the addition or replacement of major capital items, or for other powerplant or transmission line improvements, may occur over the original depreciation period. The MMS believes the regulations are sufficiently flexible to allow these costs to be incorporated into depreciation schedules.

(13) Should recapitalization and redepreciation of powerplants and transmission lines be allowed with a change in ownership?

The only commenter (from an industry trade organization) on this issue recommended that recapitalization and redepreciation be allowed with changes in ownership. The commenter believed that doing so would provide an incentive for new investments in geothermal projects and might encourage potential purchasers to pay a premium over the original cost of the plant in order to offset higher construction costs of new facilities.

MMS Response: The MMS has considered the issue of recapitalization with a change in ownership and decided that it is appropriate for the Government to participate in the depreciation of powerplant and transmission facilities only once, especially in view of MMS's nonparticipation in the profits or losses attendant upon the sale of these facilities. Accordingly, the language in proposed §§ 206.353(b)(2)(iv)(A) and 206.354(b)(2)(iv)(A) disallowing recapitalization and redepreciation on a change of ownership is adopted in the final rule.

(c) Valuation Standards—Direct Utilization

(1) Does the least expensive, reasonable alternative fuel approach (proposed § 206.355(c)(2)) correctly reflect the value of geothermal resources utilized by the lessee in his own direct utilization process facility?

The least expensive, reasonable alternative fuel approach (or simply the "alternative fuels approach") is intended to be used when the first benchmarks for non-arm's-length and "no sales" valuations are not applicable. As described above, value under the alternative fuel approach (or simply the alternative fuels approach) is based on the Btu value (or cost) of the conventional fuel displaced by the geothermal resource. Two commenters addressed the applicability of the alternative fuels approach for valuing direct utilization resources. Both respondents agreed with the overall premise of the approach but each suggested specific modifications to the calculation method. One commenter stated that direct utilization of geothermal resources usually involves a relatively high capital investment which is justified on the assumption of low feedstock costs and therefore lower operating expenses. Substitution of a more valuable feedstock to estimate the geothermal resource value thus would disproportionately increase the cost to the operator unless an adjustment is made to reflect the lessee's greater capital investment over that required for the alternative fuel. The commenter suggested that an appropriate adjustment would be to subtract from the calculated cost of the required alternative fuel an amount equal to the allowed return on capital cost of a facility designed to burn the alternative fuel plus the actual capital cost of the development of the geothermal resource.

The second commenter advised that the equation proposed by MMS to determine the amount of thermal energy displaced was appropriate in terms of density and conversion factors but was flawed in regard to the definition of the terms for enthalpies. The commenter suggested that to be more precise, the inlet enthalpy should be measured at the wellhead and the discharge enthalpy should be measured at the point just before ultimate disposal of the geothermal fluid. The commenter also recommended that a process called the "cascade" operation, in which the user gains the use of the heat by hand-off from the same or a different operator who is using the higher-grade geothermal resource, be addressed in the regulations. In this instance, the initial enthalpy for the second heat user would be equal to the field enthalpy for the first heat user. Finally, the commenter recommended modifying MMS's alternative fuel methodology with a five-step approach. Step 1 would calculate the amount of geothermal energy used, measured in therms of heat. This process would use the proposed MMS formula, and replace the "efficiency factor" by the number 100,000. The result would be:

$$\text{thermal energy used} = \frac{\text{enthalpy difference} \times \text{density} \times \text{volume} \times 9.133681.}{100,000}$$

Step 2 would calculate the purchase price of the alternative fuel in terms of dollars per therm using data submitted by the lessee. Step 3 would calculate the equivalent purchase price of geothermal heat used from the equation:

geothermal effective base cost = geothermal heat used (therms) × purchase price of alternate fuel ($/therm).

Step 4 would calculate the effects of end-use conversion efficiencies (based on the U.S. Department of Energy (DOE) sources) to determine the cost of alternative fuel displaced by the equation:

$$\text{cost of alternative fuel displaced} = \frac{\text{geothermal effective base cost.}}{\text{efficiency factor}}$$

Step 5 would calculate the amount of royalty due.

MMS Response: The MMS has considered the proposal to adjust the alternative fuel price to account for the relatively high, initial capital investment of a direct use facility and decided that no adjustment is necessary. In developing a direct use facility, MMS believes that a lessee has decided that his long-term fuel supply is best furnished by geothermal resources. Although many factors may have influenced the lessee's decision, one of the most likely reasons for utilizing the geothermal resource is the overall low cost of energy. The MMS believes that the value of the resource should be no less than the value of fuels displaced by the geothermal resource.

The MMS has carefully considered the comments of the second commenter and has decided not to revise the regulations as suggested. The five-step alternative fuel methodology varies little from the MMS-proposed methodology, and there appears to be little or no advantage to the commenter's suggestion. Regarding the suggestion to change measurement points to determine inlet and discharge enthalpies, this issue is the responsibility of BLM. The commenter's suggestion that "cascading" should be addressed in the regulations also has merit. However, the issue of royalties due on geothermal resources utilized in cascading steps is straightforward: the lessee is responsible for paying royalty on the total thermal energy yielded by the resource. Because this concept may

be complicated by the lessee allowing other operators to utilize the resource, MMS will treat the use of geothermal heat by a "cascade" operation on a case-by-case basis.

One respondent observed that the method for calculating the Btu's utilized (displaced) under the alternative fuel approach should be prescribed by BLM, not MMS, because BLM is responsible for ensuring that reported sales quantities are correct.

MMS Response: The MMS believes that the equation for calculating thermal energy displaced, prescribed in paragraphs (c)(1)(ii) and (d)(1)(ii) of § 206.355, is necessary to ensure proper valuation and therefore should remain in the final rule. The MMS does agree, however, that BLM has the authority to establish the methods and frequency of measuring resource parameters (temperature, volume, etc.), as well as the conditions for calculating the cumulative amount of thermal energy displaced (hourly cumulative, monthly average, etc.). Language to this effect has been added to the subject paragraphs in the final rule.

(2) What alternative methods may be used to value these lessee-owned and used direct utilization resources?

Except for the suggested modifications to MMS's proposed alternative fuels methodology discussed above, no alternative methods for valuing the lessee-owned and -used direct utilization resources were offered.

(3) Should efficiency factors be used in the calculation of thermal energy displaced (proposed § 206.355(c)(2))?

Only one comment was received on the applicability of using the efficiency factors in MMS's proposed direct utilization valuation equation. The commenter stated that MMS's definition of an efficiency factor fails to account for the differences in heating values (and relative thermodynamic efficiencies) represented by the different fuels and does not account for the conversion efficiencies of the wide variety of potential heat conversion apparatus. Each conversion apparatus has a "like-new" conversion efficiency, and a lower operating efficiency controlled by the state of cleanliness and maintenance. The commenter recommended that rather than an arbitrary selection of a single numerical efficiency factor applied to a wide range of apparatus, with a wider efficiency range also governed by the type of fuel burned, MMS should adopt a range of probable efficiencies as provided by DOE or the Solar Energy Research Institute.

MMS Response: The MMS believes that the regulation governing efficiency factors is sufficiently flexible to accommodate alternate efficiency factors proposed by lessees. The numerical efficiency factors are believed to be reasonable at this time. However, MMS is prepared to revise the factors by amending the final rulemaking at a later date if one or more of the factors are shown to be less than reasonable.

(4) Is it reasonable to restrict the alternative fuel to one that would normally be used in a given direct utilization process at the location of utilization (proposed § 206.355(c)(2)) and, if so, what criteria should be used to determine the most reasonable alternative fuel?

Only one comment was received on the qualifications and criteria for determining the most reasonable alternative fuel. The commenter agreed with MMS that the alternative fuel chosen should be the one that would normally be used in a given direct utilization process at the location of utilization because geothermal direct use is absolutely site specific. The commenter suggested that the lessee be required to identify the industry-preferred conventional fuel that would otherwise be used in the direct utilization facility. In addition, the commenter recommended that the lessee be required to define the price and availability of alternative fuels in the specific locale and also provide price and availability quotations from potential suppliers in that locale.

MMS Response: A lessee that values its geothermal resource by the most reasonable alternative fuel methodology is required under paragraph (e)(3) of § 206.355 to notify MMS and provide a description of the valuation procedure followed. Such description is intended to contain an explanation of the selected alternative fuel and its valuation.

(5) Should the methods of valuing alternative fuels be addressed in the final rulemaking and, if so, what criteria should be used to value the alternative fuel?

Aside from the comments proclaiming administrative and auditing difficulties associated with valuing an alternative fuel, as previously summarized at question 7 addressing valuation of geothermal resources used to generate electricity, one commenter suggested that a valuation procedure for alternative fuels should be addressed in the rulemaking and offered that the value should be based on arm's-length contract prices (which would be periodically updated) received in the local retail market.

MMS Response: The MMS believes that there is not sufficient cause to establish formal standards to value alternative fuels in the regulation. Under paragraph (e)(3) of § 206.355, a lessee is required to explain the alternative fuel valuation methodology used under non-arm's-length or "no sales" conditions. The MMS will evaluate the lessee's proposal for reasonableness on a case-by-case basis.

(d) Valuation Standards—Byproducts

(1) Are the proposed procedures for valuing geothermal byproducts (proposed § 206.356) appropriate and are there any alternative methods for byproduct valuation?

No comments were received regarding the appropriateness of the proposed byproduct valuation procedure or any alternative valuation methods. The valuation standards published in the January 5, 1989, proposed rulemaking are adopted unchanged in this rulemaking.

(2) Is the method proposed to determine byproduct transportation allowances (proposed §§ 206.357 and 206.358) reasonable and what costs should be allowed in the determination?

Only one commenter addressed allowable costs in determining byproduct transportation allowances. The commenter suggested that a proportionate share of the cost of acquisition and maintenance of easements (for transportation facilities) should be deductible as transportation costs. The commenter also recommended that MMS should have the burden of demonstrating why specific expenses are disallowed when MMS excludes those expenses from the transportation allowance.

MMS Response: The MMS intends to recognize the costs of acquiring easements or rights-of-way for geothermal byproduct transportation facilities. The method of incorporating these costs in the transportation allowance calculation would depend on their accounting disposition. For example, if the easement or right-of-way is acquired by a lump-sum payment at the beginning of operations, the cost would be included as part of the lessee's capital investment. If the easement or right-of-way is held by periodic payments, the payments would be included as part of the lessee's operating and maintenance expenses. Maintenance of the easements or rights-of-way would be included in the lessee's operating and maintenance expenses. The purchase of land to site transportation facilities might be eligible for a return on investment if the location is off the lease, is not located on another Federal geothermal resources lease, and the lessee can demonstrate to MMS's

satisfaction that the purchase of the off-lease site was absolutely necessary.

When MMS renders any valuation or allowance decision, particularly those decisions disallowing certain expenses, it issues written documentation explaining the reasons for the decision and citing the regulatory authority permitting the decision. This policy will be continued.

(3) Should the regulations provide for byproduct processing allowances and, if so, how should they be determined?

Three respondents commented on whether a processing allowance for byproducts should be included as a deduction in the valuation regulations. However, no suggestions were offered regarding the procedures or criteria that should be used in determining the allowance.

Two commenters opposed any processing allowance for byproducts because the royalty rate for such products is extremely low, a maximum of only 5 percent. One commenter advised that MMS should not promulgate regulations in an informational vacuum due to its lack of experience in byproduct recovery technology. One commenter was in favor of processing allowances for byproducts and suggested that an allowance be granted even when byproducts have negative values, as is the case when byproducts are disposed of to meet environmental standards.

MMS Response: The proposed regulations did not provide for processing allowances for geothermal byproducts. None of the comments received convinced MMS to change the proposed rule. The final regulations require that the lessee must bear the full responsibility and expense for placing geothermal byproducts in marketable condition.

(e) Miscellaneous Issues Addressed in Preamble

(1) Should MMS grant transportation allowances for the lessee's costs of delivering the resources to a point of utilization (powerplant or direct utilization facility) off the lease, unit area, or participating area?

Six commenters addressed the issue of granting transportation allowances for delivery of the geothermal resource to a point off the lease, unit, or participating area. Three commenters, including two from States and one from industry, opposed any transportation allowance. They argued that transportation to the point of utilization is a production-related cost, which should not be shared by the lessor. However, one of the comments was tempered with the suggestion that transportation allowances might be considered if the transportation results in an increased value of the resource to both the lessor and the lessee. Three commenters representing industry's position favored transportation allowances, arguing that value should be established at the wellhead and any transportation costs, including gathering from the production facilities to the utilization facilities, are post-production costs that should be deductible.

MMS Response: The lessee's responsibility to efficiently transport the resource from the wellhead to the point of utilization has already been discussed. The MMS maintains its position that gathering and transportation are production- and/or marketing-related costs that should not be shared by the lessor.

(2) Should MMS allow costs of hydrogen sulfide abatement facilities (and other facilities to mitigate environmental hazards) as part of the determination for generating deductions under the netback procedure?

Two commenters, both from States, strongly opposed any allowance for costs associated with the mitigation of environmental hazards. They cite that geothermal operators are bound by various legal requirements (Federal, State, and local) and lease terms to ensure the environment is adequately protected. One of the commenters suggests that any deductions for environmental mitigation in effect would be a subsidy to the environmental polluter. The other commenter believed that expenses associated with mitigating environmental hazards are costs of extracting the resource and placing it in marketable condition.

Two commenters, one from industry and one from an industry trade organization, favored deducting the costs of hydrogen sulfide abatement facilities and other facilities required for the mitigation of environmental hazards. They argue that abatement facilities are an integral part of the power-generating operation, and because geothermal resources with higher levels of contaminants are more expensive to use, they have less value.

MMS Response: The MMS agrees that geothermal operators are responsible under the lease terms and various legal requirements to operate the lease and manage the resource in an environmentally sound manner. After giving the issue of hydrogen sulfide abatement facilities careful consideration, however, MMS believes that a distinction must be drawn between mitigating environmental hazards associated with geothermal production and mitigating environmental hazards associated with geothermal utilization. The MMS agrees that hydrogen sulfide abatement facilities are an integral part of the generating facilities utilizing the geothermal resource and therefore should be an allowable capital cost in determining the generating deduction. The regulation in paragraph (b)(2) of § 206.354 is modified accordingly. Other facilities to mitigate environmental hazards can be included if they are shown to be an integral part of the powerplant. However, MMS maintains its position that reinjection of geothermal effluent is a production-related operation. Accordingly, the costs of effluent injection equipment—including pumps, controls, and pipes regardless of their location—are not allowable capital investments. Likewise, the costs of mitigating any other environmental hazards that are related to production are to be borne solely by the lessee.

(3) Should processing allowances be granted for geothermal resources used in direct utilization processes?

No comments were offered justifying the application of processing allowances to direct utilization technologies. Three commenters opposed any such allowance, with one rationalizing that the lure of inexpensive geothermal heat and low operating costs offset any investment costs necessary to use the heat.

MMS Response: Geothermal resources used in direct utilization facilities are not processed or converted to another form of energy as in a powerplant. The MMS can find no rational basis to grant processing allowances for direct utilization of geothermal resources.

IV. Section-by-Section Analysis and Response to Comments

This part of the preamble focuses on comments received on sections of the regulations not addressed by the selected issues discussed in part III above. Comments were not received on every section of the proposed regulations. Consequently, those sections that were not changed significantly from the proposal are not discussed further in this preamble. Changes made to the proposed regulations as a result of the comments received on the selected issues are briefly summarized. Other sections are addressed to the extent they are changed. The purpose of each section discussed is briefly described. The preamble of the proposed regulations (54 FR 354, January 5, 1989) may be

consulted for additional description of selected sections.

Section 202.351 Royalties on Geothermal Resources

The proposed paragraph (d) of § 202.351 provided that royalty would be assessed on insurance payments for resources unavoidably lost unless the lessee is self-insured. Two commenters, both from States, objected to the exclusion of royalties on self-insurance payments. They claim that insurance proceeds, whether received for self-insurance or otherwise, represent payment for production and that the exclusion of royalty on self-insured payments discriminates between the small operators who cannot afford to self-insure and the large companies.

MMS Response: The MMS has determined that royalties are due only if the lessee receives insurance compensation from a third party. No royalty is due where the lessee self-insures primarily because the insurance compensation usually represents internal funds rather than an outside source of income. The proposed regulation is adopted without change in the final rule.

Section 202.353 Measurement Standards for Reporting and Paying Royalties

This section establishes consistent units of measurement for reporting geothermal production for royalty purposes. Comments addressing this section were discussed in part III of this preamble. The final rule is modified to allow for multiple units of measurement for reporting direct-utilization resources.

Section 206.351 Definitions

This section defines terms specifically associated with valuation of geothermal resources. The terms defined here may have different meanings for other Agencies' regulations and should not be confused with other intended usages.

"Audit"—Although no comments were received on this term, the definition of audit is revised in the final rule to accommodate the meaning and intent of present and future rules regarding audits contained in 30 CFR part 217. The words "* * * review, conducted in accordance with generally-accepted accounting and auditing standards, of * * *" are replaced with "* * * procedure having the same meaning and effect as that described at 30 CFR part 217 for verifying * * *."

"Generated electricity"—As discussed in part III of this preamble, this term is deleted because of the modification to the method of calculating generating cost rates/deductions.

"Gross proceeds"—Four commenters suggested modifications to the definition of "gross proceeds." One State commenter recommended that capacity payments be specifically cited as part of gross proceeds. However, an industry commenter suggested that capacity payments be explicitly excluded from the definition of gross proceeds because capacity payments depend on the attributes of the powerplant, rather than the resource, and may be made during periods of nonproduction. Another State commenter recommended that the language "or which could accrue" be added after the words "consideration accruing" in the definition to clarify that MMS intends to include all consideration due under a contract, whether or not actually received by the lessee. The last commenter (an industry trade organization) suggested that the definition was too broad and recommended that tax reimbursements (or refunds) and any payments the lessee receives for services such as wheeling, effluent injection, hydrogen sulfide abatement, and other operating expenses be excluded, as these expenses/reimbursements have no relation to the resource.

MMS Response: The capacity payment issue has been discussed previously. The MMS clearly intends that capacity payments be a part of the "total payments received for the sale of electricity" and believes that the "total payments" term is sufficiently inclusive for this purpose. The MMS believes that the phrase "or which could accrue" following the words "consideration accruing" in the first sentence of the definition is unnecessary; the intent of this phrase is embodied in the last sentence of the definition.

Production and production-related operations are lease obligations which the lessee must perform at no cost to the Federal Government. The services listed in the definition, except for wheeling and hydrogen sulfide abatement, are all benefits that a lessee may receive for production under the terms of a geothermal resources sales contract and thus are considered part of the value (for royalty purposes) for lease production. Wheeling and hydrogen sulfide abatement are deleted in the final rule because these operations are associated with utilization of the geothermal resource rather than production; any reimbursements the lessee receives for these operations would be deducted from the lessee's costs of performing them when calculating the transmission and generating cost rates under the netback procedure.

"Plant tailgate electricity"—As discussed in part III of this preamble, the definition of plant tailgate electricity is modified to include any electricity generated by the powerplant and returned to the lease for lease operations.

Section 206.352 Valuation Standards for Electrical Generation

This section establishes the method for valuing geothermal resources used to generate electricity. Valuation methods are described according to the type of transaction under which the resource is disposed: arm's-length sales, non-arm's-length sales, and "no sales." Many of the issues surrounding the valuation of these resources were addressed in part III of this preamble.

Paragraph (b)(1)(i) of § 206.352 defines the value of those geothermal resources sold pursuant to an arm's-length contract as the gross proceeds accruing to the lessee. One State commenter objected to the use of arm's-length contracts for valuation purposes. Citing the necessity to utilize geothermal resources at or near the wellhead, the commenter questioned whether open, competitive markets for geothermal resources actually exist and whether a producer is able to obtain fair-market value because it may be forced to sell its production to whatever purchaser is available in the vicinity. (The lack of a typical open-market environment for sales of geothermal resources is also acknowledged by the geothermal industry, as indicated by remarks made during the public hearing.) The commenter recommended deleting the arm's-length methodology for valuing geothermal resources, or, in the alternative, abandoning the benchmark system so that arm's-length contracts are merely one indicia of value to be cross-checked against other indicia, such as netted-back value. As another alternative, the commenter recommended amending the definition of "arm's-length contract" (at § 206.351) either to (1) place upon the lessee the affirmative burden to establish that its contract was negotiated in an open, competitive market, or (2) permit auditors to rebut the assumption that such contracts were negotiated in an open, competitive market. (This comment also applies to paragraphs (b)(1)(i) of §§ 206.355 and 206.356, valuation standards for direct utilization resources and byproducts, respectively.)

MMS Response: The MMS recognizes that geothermal resources do not have an open market in the conventional sense. Nonetheless, MMS maintains its position that prices established in arm's-length sales contracts are reflective of market value on at least a local level.

The MMS has discussed the issue of the arm's-length gross proceeds standard at length in the preambles to the oil and gas valuation regulations effective March 1, 1988 (53 FR 1184 and 53 FR 1230); the reader is referred to those documents for a full treatment of the issue. The MMS finds no justification to abandon the arm's-length gross proceeds criterion for geothermal valuation and believes the regulation allows sufficient discretion in accepting or rejecting arm's-length contract prices as value.

An industry trade organization objected to the provisions for "monitoring" and "review" of the lessee's values used to report royalties, remarking that such activities presented the possibility of unnecessary involvement by MMS in the lessee's operations. The commenter recommended that lessees be provided with the opportunity to arrange for an independent third-party audit rather than an audit to be performed only by MMS.

MMS Response: Monitoring and review activities are well within the purview of MMS. Audits will be conducted by MMS or its designated agent, or by other Federal Agencies having jurisdiction in such matters.

Paragraph (c) of § 206.352 is revised to address only the valuation of geothermal resources sold under non-arm's-length contracts. The weighted-average method, as proposed, has been deleted as the first valuation benchmark and replaced with the minimum value criterion, and the revised weighted-average method, as described in part III of this preamble. The netback procedure and "other reasonable methods approved by MMS" are separated and assigned secondary and tertiary benchmark priority, respectively. The notification requirements of this paragraph are maintained at redesignated paragraph (c)(2) of § 206.352.

Paragraph (d) of § 206.352 is added to address only the valuation of "no sales" geothermal resources used to generate electricity. The rationale for this revision is discussed in part III of this preamble. Subsequent paragraphs are redesignated accordingly and modified by adding references to new paragraph (d) where appropriate.

Paragraph (e)(2) of § 206.352, originally proposed as paragraph (d)(2) of § 206.352, requires the lessee to make available to MMS and other authorized personnel all documents and other information necessary to support a value determination. An industry trade organization objected to the requirement obligating lessees to disclose valuation information to State representatives. The commenter recommended that "authorized person" be defined to mean an individual acting on behalf of MMS under contract, cooperative agreement, or other authorization. (This comment also applies to redesignated paragraph (e)(2) of § 206.355 and paragraph (d)(2) of § 206.356.)

MMS Response: The MMS agrees in principle with the commenter's suggestion, but does not believe a definition of "authorized person" is necessary. References to State representatives and the Office of the Inspector General (OIG) of the Department of the Interior are deleted in the final rule as being unnecessary, although their absence from the rule does not mean that the lessee is not required to provide State and OIG representatives the information at their request if they have jurisdiction or MMS authorization. The MMS believes the modified language sufficiently conveys the intent that only those representatives who are authorized to conduct audits have access to the required information.

Paragraph (f) of § 206.352, originally designated as paragraph (e) of § 206.352, requires the lessee to pay additional royalties plus interest if MMS determines a higher value of the resource than that used by the lessee for royalty calculations. An industry trade organization urged that because the lessee is responsible for interest payments on underpayment of royalties, the lessee should likewise receive interest when excessive royalty payments are made to satisfy MMS requirements. (This comment also applies to paragraph (f) of § 206.355 and paragraph (e) of § 206.356.)

MMS Response: The Geothermal Steam Act does not provide for interest compensation due to royalty overpayments. The MMS has no other statutory authority permitting such compensation.

Paragraph (h) of § 206.352 established gross proceeds as minimum value where geothermal resources are directly sold. The final rule is modified by deleting "* * * pursuant to arm's-length or non-arm's-length contracts" and simply referencing resources "directly sold."

Section 206.353 Determination of Transmission Deductions

Paragraph (b)(1) of § 206.353 describes the basis for determining a transmission line cost rate. No comments were received. However, since publication of the proposed rulemaking, MMS has become aware of transmission lines that service powerplants utilizing non-Federal geothermal resources in addition to ones utilizing Federal resources. The MMS will not share in the costs of transmitting electricity generated by powerplants utilizing non-Federal geothermal resources. This point is clarified by adding at the end of the first sentence "* * * for the purpose of transmitting electricity attributable and allocable to powerplants utilizing Federal geothermal resources." The intent is that transmission line costs must be allocated between powerplants utilizing non-Federal geothermal resources and those utilizing Federal resources, and only those transmission line costs attributable to powerplants utilizing Federal geothermal resources may be included in determining the lessee's transmission line cost rate/deduction.

Paragraphs (b)(1) of §§ 206.353 and 206.354 also provide alternative accounting periods for the transmission and generating deductions (third sentence). Language is added to § 206.353(b)(1) in the final rule to include an accounting period for the transmission deduction that is coincident with the same month in which the powerplant was placed into service. Both sections are modified in the final rule by repositioning and rewording the language requiring transmission and generating deduction periods to coincide.

Modifications common to paragraphs (b)(2) of §§ 206.353 and 206.354 were discussed in part III of this preamble. Briefly summarized, the language explicitly excluding real estate purchases from allowable capital costs (investments) in the second sentence is deleted in the final rule and new language is added as a third sentence to allow consideration of a return on real estate costs if their necessity is demonstrated by the lessee and approved by MMS. The terminology "fixed assets" in the second sentence is changed to "depreciable assets" to clarify MMS's general intent regarding allowable investment costs.

Paragraphs (b)(2)(iii) of §§ 206.353 and 206.354 establish overhead costs as allowable operating and maintenance expenses in determining the transmission and generating cost rates/deductions under the netback valuation procedure. One State commenter recommended that overhead costs be more explicitly defined. For example, legal fees, accounting functions, computer time, and other functions performed at the corporate level and belonging to the geothermal project were cited as overhead costs that should be specifically identified.

MMS Response: The MMS agrees that a more explicit listing of overhead costs would be beneficial, but believes the proper place for such detail is in the forthcoming Geothermal Payor Handbook.

Paragraphs (b)(2)(iv)(A) of §§ 206.353 and 206.354 establish the method of computing depreciation and include a prohibition on depreciating equipment below a reasonable salvage value. An industry commenter recommended that depreciation under the netback valuation procedure be allowed on the full costs of installing the power generation and transmission facilities without a reduction for salvage value. They argued that a salvage value is at best a "guesstimate" and in fact may be negative for facilities in remote areas.

MMS Response: As discussed above, salvage value is defined to be net of dismantlement costs. Salvage value is not a depreciable cost; therefore, it should be subtracted from the lessee's capital investment prior to depreciation. The MMS recognizes that some equipment, particularly transmission lines, may have zero salvage value and will accept such value if adequately demonstrated by the lessee. The MMS realizes that a salvage value will be a lessee's best estimate; but because MMS does not share in the profits (or losses) due to facility dismantlement, it will generally accept a lessee's estimated salvage value if that value is reasonable and is adequately supported.

As discussed in part III of this preamble, MMS intends to consider depreciation periods other than those based on the term of an electricity sales contract, if the lessee can demonstrate to MMS's satisfaction that an alternative depreciation period is reasonable and justified. The first sentence of paragraphs (b)(2)(iv)(A) of §§ 206.353 and 206.354 is modified in the final rule to clarify this intent by replacing the clause "* * * unless the lessee can show otherwise" with "* * * or other depreciation period acceptable to MMS."

Paragraphs (b)(2)(v) of §§ 206.353 and 206.354 establish the rate of return to be used in determining the returns on investments for transmission lines and powerplants. As discussed in part III of this preamble, MMS has determined that the rate of return on these investments should be 2 times Standard and Poor's industrial BBB bond rate. The first sentences of these paragraphs are modified accordingly and are reworded for simplification. The second sentences are modified to refer to annual deduction periods rather than operating years or periods. The third sentences, which prescribe the month in which the rate of return is annually redetermined, are reworded to refer to the same month beginning the annual deduction period chosen pursuant to paragraphs (b)(1) of the sections.

Paragraphs (c) of §§ 206.353 and 206.354 originally established threshold limits on monthly transmission and generating deductions. Three commenters (industry, an industry trade organization, and an industry representative) objected to the limits. They contended that the costs of generating and transmitting electricity are real costs and should not be subjected to arbitrary restrictions. One commenter expressed concern that the monthly application of the transmission and generating cost rates may lead to inequities in valuing the resource if the limits remain in place because seasonal adjustments in the electricity price rates could result in relatively low gross proceeds.

MMS Response: As discussed in part III of this preamble, MMS has determined that the threshold limits on transmission and generating deductions are unnecessary. Paragraphs (c)(1) and (c)(2) of §§ 206.353 and 206.354 are deleted accordingly. However, total deductions (transmission plus generating) are not allowed to reduce the value of the geothermal resource to zero. Language stating this caveat appears as new paragraphs (c) of §§ 206.353 and 206.354.

Paragraphs (d)(1) of §§ 206.353 and 206.354 establish the methods of adjusting royalty payments at the end of the accounting year when actual transmission and generating deductions (based on the accounting year's actual costs) result in royalty underpayments or overpayments. A State commenter objected to the crediting procedure when royalties are overpaid due to understated transmission and generating deductions. They argued that any mechanism for providing a credit must take into account the gross proceeds requirement; thus any credit extended in a subsequent month because of overpayment using the netback method in a prior month must not result in a value that is less than the lessee's gross proceeds for the prior month.

MMS Response: This comment presumably refers to non-arm's-length situations, since both gross proceeds and the netback value are involved. The MMS does not perceive a problem with the proposed crediting mechanism. If the recalculated deductions result in netback values that are less than the lessee's gross proceeds under a non-arm's-length contract, the minimum royalty will be based on the gross proceeds as required by § 206.352(h). Accordingly, no credit would be due the lessee.

New paragraphs (f) are added to §§ 206.353 and 206.354 to allow for the recoupment of royalties attributable to actual dismantlement costs in excess of salvage income, as discussed in part III of this preamble.

Section 206.354 Determination of Generating Deductions

Paragraph (b)(1) of § 206.354 describes the method of calculating generating cost rates. As discussed in part II of this preamble, the MMS is modifying the method of calculating generating cost rates by using plant tailgate electricity rather than generated electricity. Accordingly, the word "generated" in the third sentence of this paragraph is replaced with "plant tailgate" in the final rule.

Paragraph (b)(2) of § 206.354 describes in general terms the capital costs allowed for computing a generating cost rate. As discussed in part III of this preamble, MMS recognizes that some equipment associated with the power conversion cycle may be located at or in the well, such as separators or downhole pumps used to meet pressure specifications of the power conversion equipment. To allow for these costs, the final rule is modified by adding at the end of the second sentence "* * * or are required by the design specifications of the power conversion cycle." The third sentence is modified in the final rule by deleting reference to hydrogen sulfide abatement equipment and other powerplant facilities installed to mitigate environmental hazards because MMS has determined that this equipment is an integral part of a powerplant operation.

Paragraph (b)(3) of § 206.354, which further addresses the method of calculating generating cost rates, is modified in the final rule by replacing the word "generated" with "plant tailgate."

Section 206.355 Valuation Standards for Direct Utilization

Proposed paragraph (c) of § 206.355 established a benchmark system for valuing direct use geothermal resources sold under non-arm's-length contracts or not sold but instead directly utilized by the lessee in its own utilization facility ("no sales" resources). The first benchmark designated the weighted-average method for valuation. As discussed previously for geothermal resources used to generate electricity and sold under a non-arm's-length contract, MMS has rejected the proposed weighted-average valuation

method and determined that a lessee's gross proceeds received under its non-arm's-length contract must be considered in any valuation scheme. Also, MMS determined that arm's-length sales of significant quantities of geothermal resources to the same facility would be considered if the non-arm's-length gross proceeds were not acceptable. Accordingly, this section is revised to reflect that position. A new benchmark system incorporating MMS's gross proceeds philosophy and the least expensive, reasonable alternative fuel approach is established to value those direct utilization resources sold under non-arm's-length contracts. Valuation standards for "no sales" direct utilization resources are reassigned to a new paragraph (d).

The first valuation benchmark under revised § 206.355(c) is similar to the first benchmark used to value electrical generation resources sold under non-arm's-length contracts (final rule § 206.352(c)(1)(i)): the gross proceeds received by the lessee under its non-arm's-length contract will be acceptable for royalty valuation provided those gross proceeds are not less than the gross proceeds derived from or paid under the lowest-priced available comparable arm's-length contract for sales of geothermal resources to the lessee-affiliate's same direct utilization facility (the "minimum value"). If the gross proceeds under the lessee's non-arm's-length contract are less than the "minimum value," or if there are no available comparable arm's-length contracts, value will be determined by the weighted average of the gross proceeds established under arm's-length contracts for the sales of significant quantities of geothermal resources to the same direct utilization facility. The same conditions regarding the availability and comparability of arm's-length contracts noted for valuing the electrical generation resources are applicable to the direct utilization resources.

If the first benchmark is not applicable, value would then be established by the second benchmark—the least expensive, reasonable alternative fuel approach (§ 206.355(c)(1)(ii)). "Any other reasonable valuation method approved by MMS" is assigned separately as the third valuation benchmark in § 206.355(c)(1)(iii). This provision is intended to be used only in those cases where the lessee can demonstrate that the first two benchmarks are unworkable or inapplicable. The notification requirements of this section are maintained as redesignated paragraph (c)(2) of § 206.355.

Paragraph (d) of § 206.355 is added to address the valuation of "no sales" direct utilization resources. It appears separately because in these situations the lessee has no gross proceeds for the sale of the resource (or a converted form of energy) on which to base or compare value. Valuation criteria are established in a benchmark system similar to that for non-arm's length sales valuations, with the first benchmark at paragraph (d)(1)(i) again considering prices established in arm's-length sales contracts as a measure of value. Although the lessee generally will utilize only its own geothermal resources to supply the direct utilization facility, there may be some situations where the lessee purchases additional resources from other parties for utilization facility consumption. These other purchases, if arm's-length and of significant quantities, would provide a logical basis for establishing value. Accordingly, valuation under the first benchmark for "no sales" direct utilization resources is the weighted average of gross proceeds established in arm's-length contracts for the purchase of significant quantities of geothermal resources to supply the lessee's facility. As with the electrical generation resources, the acceptability of the gross proceeds under the arm's-length contract(s) to value the lessee's production will be determined in large part by the volume and quality of resources purchased compared to that of the lessee's own production; other contract elements such as time of execution, duration, terms, and other factors affecting the disposition or value of the resource will also be considered.

The second benchmark under the "no sales" direct utilization valuation standards in § 206.355(d)(1)(ii) is the least expensive, reasonable alternative fuel method. The MMS anticipates that this procedure will be used to value most geothermal resources used by lessees in their own direct utilization facilities. "Other reasonable valuation methods approved by MMS" are assigned as a third benchmark in § 206.355(d)(1)(iii), with the intent that this benchmark can be used only when the lessee demonstrates that the first two benchmarks are unworkable.

All paragraphs following newly designated paragraph (d) of § 206.355 are redesignated accordingly; references to new paragraph (d) are made where appropriate.

Paragraph (h) of § 206.355 establishes gross proceeds as minimum value where geothermal resources are directly sold. The final rule is modified by deleting "* * * pursuant to arm's-length or non-arm's-length contracts" and simply referring to resources "directly sold."

Section 206.356 Valuation Standards for Byproducts

This section establishes the methods of valuing geothermal byproducts for royalty purposes. Although no comments were received, paragraph (c)(1), the first benchmark for valuing non-arm's-length and "no sales" byproducts, is revised by replacing the "equivalent gross proceeds" methodology with the minimum value methodology, consistent with the first non-arm's-length valuation benchmark for electrical generation and direct utilization of geothermal resources. Paragraph (c)(1) is further modified by incorporating the provisions of the second benchmark (proposed paragraph (c)(2)). Thus, the first benchmark for valuing non-arm's-length and "no sales" byproducts would compare the lessee's non-arm's-length gross proceeds with the minimum value under available comparable arm's length contracts in the field or, if necessary to obtain a representative sample, from the same area. Again, if the lessee's gross proceeds are less than the "minimum value," or if there are no comparable contracts, then value is determined by the weighted average of the gross proceeds established under arm's-length contracts for the sale of like-quality products in the field or the same area. Paragraph (c)(2) is deleted and the following paragraphs are renumbered accordingly.

Section 206.357 Byproduct Transportation Allowances—General

This section establishes the conditions for application of byproduct transportation allowances. No comments were received addressing this section, but the final rule is modified by inserting references to unit areas and participating areas at appropriate places. This change recognizes that unitization consolidates various leases into a single operating unit without regard to separate ownership and establishes allocation of costs and benefits on a basis defined in the agreement.

Section 206.358 Determination of Byproduct Transportation Allowances

This section describes the methods of determining transportation allowances for geothermal byproducts. Paragraph (b)(2) describes the general costs allowed in determining a transportation allowance under non-arm's-length or no transportation contract situations. The terminology "fixed assets" in the second

sentence is changed to "depreciable assets" in the final rule to clarify MMS's intent of recognizing only those costs associated with the capital equipment and facilities required to transport the byproduct as part of the capital investment base. The parenthetical phrase "but excluding real estate purchases" in the second sentence is deleted and a new sentence is added to allow consideration of a return on the cost of land purchased to site a transportation facility if the lessee can demonstrate the necessity for the purchase and the cost is approved by MMS.

Paragraph (b)(2)(v) establishes the rate of return to be used in computing the allowance when the transportation is performed by the lessee or the lessee's affiliate. In the proposed rule, MMS suggested a rate of return of 1.5 times Standard and Poor's industrial BBB bond rate. Although no comments were received on this particular rate of return, MMS has re-examined the issue and determined that the 1.5 multiplier is not warranted. The MMS does not foresee byproduct transportation systems involving unusual design or extraordinary costs. Rather, they are perceived as conventional operations analogous to coal and other solid mineral transportation methods. The final rule is modified by designating Standard and Poor's industrial BBB bond rate, without a multiplier, as the rate of return for determining byproduct transportation allowances.

Section 212.351 Required Recordkeeping and Reports

This section is modified in the final rule by incorporating the requirements of § 212.352 (records and files maintenance). Section 212.352 is deleted as being duplicative and unnecessary.

The final rule also includes an administrative amendment to subpart B of 30 CFR part 212 to remove the authority citation included therein. The authority citation for part 212 is included directly after the table of contents and before the regulatory text and therefore is not required under this subpart.

V. Procedural Matters

Executive Order 12991

The Department has determined that this document is not a major rule and does not require a regulatory analysis under Executive Order 12291. This rulemaking will establish regulations to reflect current policy and practices with respect to the valuation of geothermal byproducts and resources used in direct utilization processes.

Regulatory Flexibility Act

Because this rule primarily clarifies existing requirements, there are no significant additional requirements or burdens placed upon small business entities as a result of implementation of this rule. Therefore, the Department has determined that this rulemaking will not have a significant economic effect on a substantial number of small entities and does not require a regulatory flexibility analysis under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

Executive Order 12630

The Department certifies that this rulemaking does not represent a governmental action capable of interference with constitutionally protected property rights. Thus, a Takings Implication Assessment need not be prepared pursuant to Executive Order 12630, "Government Action and Interference with Constitutionally Protected Property Rights."

Paperwork Reduction Act of 1980

The information collection and recordkeeping requirements located at §§ 202.353, 210.352, and 210.354 of this rule have been approved by the Office of Management and Budget OMB under 44 U.S.C. 3501 *et seq.* and assigned OMB Clearance Numbers 1010–0033 and 1010–0022.

National Environmental Policy Act of 1969

It is hereby determined that this rulemaking does not constitute a major Federal action significantly affecting the quality of the human environment and a detailed statement pursuant to paragraph (2)(C) of Section 102 of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)) is not required.

List of Subjects

30 CFR Part 202

Coal, Continental shelf, Geothermal energy, Government contracts, Indian lands, Mineral royalties, Natural gas, Petroleum, Public lands—mineral resources, Reporting and recordkeeping requirements.

30 CFR Part 206

Coal, Continental shelf, Geothermal energy, Government contracts, Indian lands, Mineral royalties, Natural gas, Petroleum, Public lands—mineral resources, Reporting and recordkeeping requirements.

30 CFR Part 210

Coal, Continental shelf, Geothermal energy, Government contracts, Indian lands, Mineral royalties, Natural gas, Petroleum, Public lands—mineral resources, Reporting and recordkeeping requirements.

30 CFR Part 212

Coal, Continental shelf, Geothermal energy, Government contracts, Indian lands, Mineral royalties, Natural gas, Petroleum, Public lands—mineral resources, Reporting and recordkeeping requirements.

Dated: June 25, 1991.

David C. O'Neal,

Assistant Secretary—Land and Minerals Management.

For the reasons set out in the preamble, 30 CFR parts 202, 206, 210, and 212 are amended as follows:

PART 202—ROYALTIES

1. The authority citation for part 202 is revised to read as follows:

Authority: 5 U.S.C. 301 *et seq.*; 25 U.S.C. 396 *et seq.*; 25 U.S.C. 396a *et seq.*; 25 U.S.C. 2101 *et seq.*; 30 U.S.C. 181 *et seq.*; 30 U.S.C. 351 *et seq.*; 30 U.S.C. 1001 *et seq.*; 30 U.S.C. 1701 *et seq.*; 31 U.S.C. 9701; 43 U.S.C. 1301 *et seq.*; 43 U.S.C. 1331 *et seq.*; 43 U.S.C. 1801 *et seq.*

2. Subpart H, previously reserved, is amended by adding §§ 202.350 through 202.353 to read as follows:

Subpart H—Geothermal Resources

Sec.

Subpart H—Geothermal Resources

§ 202.350 Scope and definitions.

(a) This subpart is applicable to all geothermal resources produced from Federal geothermal leases issued pursuant to the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001 *et seq.*).

(b) The definitions in 30 CFR 206.351 are applicable to this subpart.

§ 202.351 Royalties on geothermal resources.

(a) Royalties on geothermal resources, including byproduct minerals and commercially demineralized water, shall be at the royalty rate(s) specified in the lease, unless the Secretary of the Interior temporarily waives, suspends, or reduces that rate(s). Royalties shall be paid in value. The royalty due shall be the value determined pursuant to subpart H of 30 CFR part 206 multiplied by the royalty rate in the lease.

(b)(1) Royalties are due on all geothermal resources, except those

specified in paragraph (b)(2) of this section, that are produced from a lease and are sold or utilized by the lessee or are reasonably susceptible to sale or utilization by the lessee.

(2) Geothermal resources that are unavoidably lost, as determined by the Bureau of Land Management (BLM), and geothermal resources that are reinjected prior to use on or off the lease, as approved by BLM, are not subject to royalty. The Minerals Management Service (MMS) will allow free of royalty a reasonable amount of geothermal energy necessary to generate electricity for internal powerplant operations or to generate electricity returned to the lease for lease operations. If a powerplant uses geothermal production from more than one lease, or uses unitized or communitized production, only that proportionate share of each lease's production (actual or allocated) necessary to operate the powerplant may be used royalty free. The MMS will also allow free of royalty a reasonable amount of commercially demineralized water necessary for powerplant operations or otherwise used on or for the benefit of the lease.

(3) Royalties on byproducts are due at the time the recovered byproduct is used, sold, or otherwise finally disposed of. Byproducts produced and added to stockpiles or inventory do not require payment of royalty until the byproducts are sold, utilized, or otherwise finally disposed of. The MMS may ask BLM to increase the lease bond to protect the lessor's interest when BLM determines that stockpiles or inventories become excessive.

(c) If BLM determines that geothermal resources (including byproducts) were avoidably lost or wasted from the lease, or that geothermal resources (including byproducts) were drained from the lease for which compensatory royalty is due, the value of those geothermal resources shall be determined in accordance with subpart H of 30 CFR part 206.

(d) If a lessee receives insurance or other compensation for unavoidably lost geothermal resources (including byproducts), royalties at the rates specified in the lease are due on the amount of that compensation. This paragraph shall not apply to compensation through self-insurance.

§ 202.352 Minimum royalty.

In no event shall the lessee's annual royalty payments for any producing lease be less than the minimum royalty established by the lease.

§ 202.353 Measurement standards for reporting and paying royalties.

(a) For geothermal resources used to generate electricity, the quantity on which royalty is due shall be reported on Form MMS–2014 (Report of Sales and Royalty Remittance) as follows:

(1) For geothermal resources valued under arm's-length or non-arm's-length contracts, quantities shall be reported in:

(i) Kilowatthours to the nearest whole kilowatthour if the contract specifies payment in terms of generated electricity,

(ii) Thousands of pounds to the nearest whole thousand pounds if the contract specifies payment in terms of weight, or

(iii) Millions of Btu's to the nearest whole million Btu if the contract specifies payment in terms of heat or thermal energy.

(2) For geothermal resources valued by the netback procedure pursuant to 30 CFR 206.352(c)(1)(ii) or (d)(1)(ii), the quantities shall be reported in kilowatthours to the nearest whole kilowatthour.

(b) For geothermal resources used in direct utilization processes, the quantity on which royalty is due shall be reported on Form MMS–2014 in:

(1) Millions of Btu's to the nearest whole million Btu if valuation is in terms of thermal energy used or displaced,

(2) Hundreds of gallons to the nearest hundred gallons of geothermal fluid produced if valuation is in terms of volume, or

(3) Other measurement unit approved by MMS for valuation and reporting purposes.

(c) For byproduct minerals, the quantity on which royalty is due shall be reported on Form MMS–2014 consistent with MMS-established reporting standards.

(d) For commercially demineralized water, the quantity on which royalty is due shall be reported on Form MMS–2014 in hundreds of gallons to the nearest hundred gallons.

(e) Lessees are not required to report the quality of geothermal resources, including byproducts, to MMS. The lessee must maintain quality measurements for audit and valuation purposes. Quality measurements include, but are not limited to, temperatures and chemical analyses for fluid geothermal resources and chemical analyses, weight percent, or other purity measurements for byproducts.

PART 206—PRODUCT VALUATION

1. The authority citation for part 206 continues to read as follows:

Authority: 5 U.S.C. 301 *et seq.*; 25 U.S.C. 396 *et seq.*; 25 U.S.C. 396a *et seq.*; 25 U.S.C. 2101 *et seq.*; 30 U.S.C. 181 *et seq.*; 30 U.S.C. 351 *et seq.*; 30 U.S.C. 1001 *et seq.*; 30 U.S.C. 1701 *et seq.*; 31 U.S.C. 9701; 43 U.S.C. 1301 *et seq.*; 43 U.S.C. 1331 *et seq.*; and 43 U.S.C. 1801 *et seq.*

2. Subpart H is amended by revising §§ 206.350 and 206.351 and by adding §§ 206.352 through 206.358 to read as follows:

Subpart H—Geothermal Resources

Sec.

Subpart H—Geothermal Resources

§ 206.350 Purpose and scope.

(a) This subpart is applicable to all geothermal resources produced from Federal geothermal leases issued pursuant to the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001 *et seq.*). The purpose of this subpart is to establish the value of geothermal production for royalty purposes.

(b) All royalty payments made to MMS are subject to audit and adjustment.

§ 206.351 Definitions.

For purposes of this subpart:

Arm's-length contract means a contract or agreement that has been arrived at in the marketplace between independent, nonaffiliated persons with opposing economic interests regarding that contract. For purposes of this subpart, two persons are affiliated if one person controls, is controlled by, or is under common control with, another person. For purposes of this subpart, based on the instruments of ownership of the voting securities of an entity, or based on other forms of ownership:

(1) Ownership in excess of 50 percent constitutes control;

(2) Ownership of 10 through 50 percent creates a rebuttable presumption of control; and

(3) Ownership of less than 10 percent creates a presumption of noncontrol which MMS may rebut if it demonstrates actual or legal control, including the existence of interlocking directorates.

Notwithstanding any other provisions of this subpart, contracts between relatives, either by blood or by marriage, are not arm's-length contracts. The MMS may require the lessee to certify the claimed nature of ownership control. To be considered arm's-length for any production month, a contract must meet the requirements of this definition for the production month as well as when the contract was executed.

Audit means a procedure having the same meaning and effect as that described at 30 CFR part 217 for verifying royalty payment compliance activities of lessees or other authorized persons who pay royalties, rents, or bonuses on Federal geothermal leases.

Byproduct means:

(1) Any mineral or minerals (exclusive of oil, hydrocarbon gas, and helium) which are found in solution or developed in association with geothermal fluids and which have a value of less than 75 per centum of the value of the geothermal energy or are not, because of quantity, quality, or technical difficulties in extraction and production, of sufficient value to warrant extraction and production by themselves, and

(2) Commercially demineralized water.

Byproduct recovery facility means the facility or facilities at which byproducts are placed in marketable condition.

Byproduct transportation allowance means an approved allowance for the lessee's reasonable, actual costs, excluding gathering, incurred for moving byproducts, including commercially demineralized water, to a point of sale or point of delivery off the lease, unit area, or communitized area.

Contract means any oral or written agreement, including amendments or revisions thereto, between two or more persons and enforceable by law that with due consideration creates an obligation.

Deduction means a subtraction used in the geothermal netback procedure for determining the value of geothermal resources utilized by the lessee to generate electricity. *Transmission deduction* means a deduction for the lessee's reasonable actual costs incurred to wheel or transmit the electricity from the lessee's powerplant to the purchaser's delivery point. *Generating deduction* means a deduction for the lessee's reasonable, actual costs of generating plant tailgate electricity.

Delivered electricity means the amount of electricity in kilowatthours delivered to the purchaser.

Direct utilization means any process other than electrical generation in which the thermal energy of the geothermal resource is utilized, including, but not limited to, space heating, greenhouse operations, and industrial or agricultural process heat.

Field means the land surface vertically projected over a subsurface geothermal reservoir encompassing at least the outermost boundaries of all geothermal accumulations known to be within that reservoir. Geothermal fields are usually given names and their official boundaries are often designated by regulatory agencies in the respective States in which the fields are located.

Gathering means the efficient movement of lease production from the wellhead to the point of utilization.

Geothermal netback procedure means the method of determining the value of geothermal resources that are utilized in a lessee-owned powerplant for the generation and sale of electricity by deducting the lessee's reasonable, actual transmission and generating costs from the sales price or value of the electricity to derive the value of the geothermal resource at the powerplant inlet.

Geothermal resources means:

(1) All products of geothermal processes, including indigenous steam, hot water, and hot brines;

(2) Steam and other gases, hot water, and hot brines resulting from water, gas, or other fluids artificially introduced into geothermal formations;

(3) Heat or other associated energy found in geothermal formations; and

(4) Any byproducts.

Geothermal utilization facility means a powerplant or direct utilization facility that utilizes the heat or other energy of the geothermal resource.

Gross proceeds (for royalty purposes) means the total monies and other consideration accruing to a geothermal lessee for any disposition of geothermal resources, including total payments for the sale of electricity generated by the lessee from lease-produced geothermal resources. Gross proceeds includes, but is not limited to, payments to the lessee for certain services such as effluent injection, field operation and maintenance, drilling or workover of wells, and/or field gathering to the extent that the lessee is obligated to perform them at no cost to the Federal Government. Gross proceeds also includes, but is not limited to, reimbursements for production taxes and other taxes. Tax reimbursements are part of gross proceeds accruing to a lessee even though the Federal royalty interest may be exempt from taxation. Monies and other consideration, including the forms of consideration identified in this paragraph, to which a lessee is contractually or legally entitled but which it does not seek to collect through reasonable efforts are also part of gross proceeds.

Lease means a geothermal lease issued under authority of the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001 *et seq.*), unless the context indicates otherwise.

Lessee means any person to whom the United States issues a geothermal lease, and any person who has been assigned an obligation to make royalty or other payments required by the lease. This includes any person who has an interest in a geothermal lease as well as an operator or payor who has no interest in the lease but who has assumed the royalty payment responsibility. This also includes any affiliate of the lessee that utilizes the geothermal resource to generate electricity, in a direct utilization process, or to recover byproducts, or any affiliate that transports lease production.

Like-quality lease products means lease products that have similar chemical, physical, and legal characteristics.

Marketable condition means lease products that are sufficiently free from impurities and otherwise in a condition that they will be accepted by a purchaser under a sales contract typical for the field.

Minimum royalty means the minimum amount of annual royalty as specified in the lease or in applicable leasing regulations that the lessee must pay after commencement of geothermal production in commercial quantities.

No sales means the utilization or disposal of geothermal resources without the benefit of a sale.

Person means any individual, firm, corporation, association, partnership, consortium, or joint venture (when established as a separate entity).

Plant tailgate electricity means the amount of electricity in kilowatthours generated by the powerplant exclusive of plant parasitic electricity, but inclusive of any electricity generated by the powerplant and returned to the lease for lease operations. Plant tailgate electricity should be measured at, or calculated for, the high voltage side of the transformer in the plant switchyard.

Point of utilization means the powerplant or direct utilization facility in which the geothermal resource (steam or hot water) is utilized.

Reasonable alternative fuel means a conventional fuel (such as coal, oil, gas, or wood) that would normally be used as a source of heat in direct utilization operations.

Secretary means the Secretary of the Department of the Interior or any person

duly authorized to exercise the powers vested in that office.

Selling arrangement means the individually contracted arrangements under which sales or dispositions of geothermal resources are made, including sales or dispositions of byproducts and electricity sales where the lessee generates electricity from lease geothermal production.

Spot market price means the price received under any sales transaction when planned or actual deliveries span a short period of time, usually not exceeding 1 year.

Wheeling means the transmission of electricity from a powerplant to the point of delivery.

§ 206.352 Valuation standards for electrical generation.

(a) The value of geothermal resources produced from leases subject to this subpart and used to generate electricity shall be determined pursuant to this section.

(b)(1)(i) The value of geothermal resources that are sold pursuant to an arm's-length contract shall be the gross proceeds accruing to the lessee, except as provided in paragraphs (b)(1)(ii) and (b)(1)(iii) of this section. The lessee shall have the burden of demonstrating that its contract is arm's-length. The value that the lessee reports for royalty purposes is subject to monitoring, review, and audit.

(ii) In conducting reviews and audits, MMS will examine whether the contract reflects the total consideration actually transferred, either directly or indirectly, from the buyer to the seller for the geothermal resource. If the contract does not reflect the total consideration, MMS may require that the geothermal resource sold pursuant to that contract be valued in accordance with paragraph (d) of this section. Value shall not be less than the gross proceeds accruing to the lessee, including any additional consideration received.

(iii) If MMS determines that the gross proceeds accruing to the lessee pursuant to an arm's-length contract do not reflect the reasonable value of the production because of misconduct by or between the contracting parties, or because the lessee otherwise has breached its duty to the lessor to market the production for the mutual benefit of the lessee and the lessor, MMS shall require the geothermal resource to be valued pursuant to paragraph (d) of this section, and notification provided to MMS in accordance with paragraph (e)(3) of this section. If MMS determines that the value may be unreasonable, MMS will notify the lessee and give the lessee an opportunity to provide written information justifying the lessee's value.

(2) The MMS may require a lessee to certify that the provisions in its arm's-length contract include all of the consideration to be paid by the buyer, either directly or indirectly, for the geothermal resource.

(c)(1) The value of geothermal resources subject to this section that are sold under a non-arm's-length contract shall be determined in accordance with the first applicable of the following paragraphs:

(i) The gross proceeds accruing to the lessee pursuant to a sale under its non-arm's-length contract provided that those gross proceeds are not less than the gross proceeds derived from or paid under the lowest-priced available comparable arm's-length contract for sales of geothermal resources to the lessee-affiliate's same powerplant (the "minimum value"). If the gross proceeds under the lessee's non-arm's-length contract are less than the "minimum value" under available comparable arm's-length contracts, or if there are no available comparable arm's-length contracts, value will be determined by the weighted average of the gross proceeds established under arm's-length contracts for the sale of significant quantities of geothermal resources to the same powerplant. Available contracts will mean contracts in the possession of the lessee, the lessee's affiliate, or MMS. In evaluating the comparability of arm's-length contracts for the purposes of these regulations, the following factors shall be considered: Time of execution, duration, terms, quality of the geothermal resource, volume, dedication to the same powerplant, and other factors that may be appropriate to reflect the value of the resource;

(ii) The value determined by the geothermal netback procedure. Under the geothermal netback procedure, the lessee's reasonable actual costs for the generation and transmission of electricity shall be deducted from the lessee's gross proceeds received for the sale of electricity to determine the value of the geothermal resource. Transmission deductions shall be determined pursuant to § 206.353 of this part. Generating deductions shall be determined pursuant to § 206.354 of this part; or

(iii) A value determined by any other reasonable valuation method approved by MMS.

(2) Value determinations made pursuant to this paragraph are subject to the notification requirements of paragraph (e) of this section.

(d)(1) The value of geothermal resources subject to this section that are not subject to a sales transaction ("no sales" geothermal resources) but are instead utilized directly by the lessee in its own powerplant for the generation and sale of electricity shall be determined in accordance with the first applicable of the following paragraphs:

(i) The weighted average of the gross proceeds established in arm's-length contracts for the purchase of significant quantities of geothermal resources to operate the lessee's same powerplant. In evaluating the acceptability of arm's-length contracts, the following factors shall be considered: Time of execution, duration, terms, volume, quality of resource, and such other factors as may be appropriate to reflect the value of the resource;

(ii) The value determined by the geothermal netback procedure. Under the geothermal netback procedure, the lessee's reasonable actual costs for the generation and transmission of electricity shall be deducted from the lessee's gross proceeds received for the sale of electricity to determine the value of the geothermal resource. Transmission deductions shall be determined pursuant to § 206.353 of this part. Generating deductions shall be determined pursuant to § 206.354 of this part; or

(iii) A value determined by any other reasonable valuation method approved by MMS.

(2) Value determinations made pursuant to this paragraph are subject to the notification requirements of paragraph (e) of this section.

(e)(1) Pursuant to subpart H of 30 CFR part 212, the lessee shall retain all data relevant to the determination of royalty value, particularly where the value is determined pursuant to paragraph (c) or (d) of this section. Such data shall be subject to review and audit, and MMS will direct a lessee to use a different value if it determines that the reported value is inconsistent with the requirements of these regulations.

(2) Upon request, lessees shall make available to authorized MMS representatives or to other authorized persons any and all contracts for the sale or other disposition of the lease production; contracts for the sale, generation, and/or transmission of electricity attributable to lease production; and any arm's-length sales and other data for like-quality production sold, purchased, or otherwise obtained by the lessee from the field as may be necessary to support a value determination.

(3) A lessee shall notify MMS if it has determined value pursuant to paragraph (c) or (d) of this section. The notification

shall be by letter to the MMS Associate Director for Royalty Management or his/her designee. The letter shall identify the valuation method to be used and contain a brief description of the procedure to be followed. The notification required by this paragraph is a one-time notification due no later than the end of the month following the month the lessee first reports royalties on a Form MMS–2014 using a valuation method authorized by paragraph (c) or (d) of this section.

(f) If MMS determines that a lessee has not properly determined value, the lessee shall pay the difference, if any, between royalty payments made based upon the value it has used and the royalty payments that are due based upon the value established by MMS. The lessee shall also pay interest on that difference computed pursuant to 30 CFR 218.302. If the lessee is entitled to a credit, MMS will provide instructions for the taking of that credit.

(g) The lessee may request a value determination from MMS. In that event, the lessee shall propose to MMS a value determination method and may use that method in determining value, for royalty purposes, until MMS issues its decision. The lessee shall submit all available data relevant to its proposal. The MMS shall expeditiously determine the value based upon the lessee's proposal and any additional information MMS deems necessary. In making a value determination, MMS may use any of the valuation criteria consistent with this subpart. That determination shall remain effective for the period stated therein. After MMS issues its determination, the lessee shall make the adjustments in accordance with paragraph (f) of this section.

(h) Notwithstanding any other provision of this section, under no circumstances shall the value of production for royalty purposes be less than the gross proceeds accruing to the lessee where geothermal resources are directly sold.

(i) The lessee is required to place geothermal resources in marketable condition and to deliver geothermal resources to the powerplant at no cost to the Federal lessor. Where the value established pursuant to this section is determined by a lessee's gross proceeds, that value shall be increased to the extent that the gross proceeds have been reduced because the purchaser, or any other person, is providing certain services the cost of which ordinarily is the responsibility of the lessee to place the geothermal resource in marketable condition or deliver it to the powerplant.

(j) Value shall be based on the highest price a prudent lessee can receive through legally enforceable claims under its contract. Absent contract revision or amendment, if the lessee fails to take proper or timely action to receive prices or benefits to which it is entitled, it must pay royalty at a value based upon that obtainable price or benefit. Contract revisions or amendments shall be in writing and signed by all parties to the contract. If the lessee makes timely application for a price increase or benefit allowed under its contract but the purchaser refuses and the lessee takes reasonable measures, which are documented, to force purchaser compliance, the lessee will owe no additional royalties unless or until monies or consideration resulting from the price increase or additional benefits are received. This paragraph shall not be construed to permit a lessee to avoid its royalty payment obligation in situations where a purchaser fails to pay, in whole or in part or timely, for a quantity of geothermal resources.

(k) Notwithstanding any provision in these regulations to the contrary, no review, reconciliation, monitoring, or other like process that results in a redetermination by MMS of value under this section shall be considered final or binding as against the Federal Government or its beneficiaries until the audit period is formally closed.

(l) Certain information submitted to MMS to support value determinations is exempted from disclosure by the Freedom of Information Act, 5 U.S.C. 552, or other Federal law. Any data specified by law to be privileged, confidential, or otherwise exempt will be maintained in a confidential manner in accordance with applicable law and regulations. All requests for information about determinations made under this subpart are to be submitted in accordance with the Freedom of Information Act regulations of the Department, 43 CFR part 2.

§ 206.353 Determination of transmission deductions.

(a) Where the value of geothermal energy is determined by the geothermal netback procedure pursuant to paragraphs (c)(1)(ii) and (d)(1)(ii) of § 206.352 of this subpart, a transmission deduction shall be subtracted from the lessee's gross proceeds received for the sale of electricity to determine the plant tailgate value of the electricity. The transmission deduction consists of either or both of two components:

(1) Transmission line costs as determined pursuant to paragraph (b) of this section, and

(2) Wheeling costs if the electricity is transmitted across a third-party's transmission line under an arm's-length wheeling agreement. Transmission deductions are subject to the limitation prescribed in paragraph (c) of this section.

(b)(1) Transmission-line costs shall be based on the lessee's actual costs associated with the construction and operation of a transmission line for the purpose of transmitting electricity attributable and allocable to the lessee's powerplant utilizing Federal geothermal resources. The monthly transmission line cost component of the transmission deduction is determined by multiplying the annual transmission line cost rate (in dollars per kilowatthour) by the amount of electricity delivered for the reporting month. The transmission line cost rate shall be redetermined annually at the beginning of the same month of the year in which the transmission line was placed into service, the same month of the year in which the powerplant was placed into service, or, at the lessee's option, at a time concurrent with the beginning of the lessee's annual corporate accounting period; *Provided*, however, the period selected must coincide with the same period chosen for the generating deduction pursuant to § 206.354(b)(1). After a deduction period is chosen, the lessee may not later elect to use a different deduction period without MMS approval.

(2) Allowable transmission-line costs include operating and maintenance expenses, overhead, and either depreciation and a return on undepreciated capital investment in accordance with paragraph (b)(2)(iv)(A) of this section, or a cost equal to the capital investment in the transmission line multiplied by a rate of return in accordance with paragraph (b)(2)(iv)(B) of this section. Allowable capital costs are generally those costs for depreciable assets, including costs of delivery and installation of capital equipment, that are an integral part of the transmission line. A return on capital invested in the purchase of real estate for transmission facilities may be allowed provided that the lessee demonstrates the necessity for such purchase, the purchased land is not on a Federal geothermal lease, and MMS approves the deduction; the rate of return shall be the same rate determined in paragraph (b)(2)(v) of this section.

(i) Allowable operating expenses include operations supervision and engineering, operations labor, materials, ad valorem property taxes, rent, supplies, and any other directly allocable and attributable operating expenses that the lessee can document.

(ii) Allowable maintenance expenses include maintenance of the transmission line, maintenance of equipment,

maintenance labor, and other directly allocable and attributable maintenance expenses that the lessee can document.

(iii) Overhead directly attributable and allocable to the operation and maintenance of the transmission line is an allowable expense. State and Federal income taxes and severance taxes and other fees, including royalties, are not allowable expenses.

(iv) To compute costs associated with capital investment, a lessee may use either depreciation with a return on undepreciated capital investment, or a return on capital investment. After a lessee has elected to use either method, the lessee may not later elect to change to the other alternative without MMS approval.

(A) To compute depreciation, the lessee must use a straight-line depreciation method based on the expected life of the geothermal project, usually the term of the electricity sales contract or other depreciation period acceptable to MMS. A change in ownership of a transmission line shall not alter the depreciation schedule established by the original lessee-owner for purposes of computing transmission line costs. With or without a change in ownership, a transmission line shall be depreciated only once. The rate of return used to compute the return on undepreciated capital investment shall be determined pursuant to paragraph (b)(2)(v) of this section.

(B) To compute a return on capital investment, the allowed cost shall be the amount equal to the allowable capital investment in the transmission line multiplied by the rate of return determined pursuant to paragraph (b)(2)(v) of this section. No allowance shall be provided for depreciation. This alternative shall apply only to transmission lines first placed into service on or after March 1, 1988.

(v) The rate of return shall be 2 times Standard and Poor's industrial BBB bond rate. The rate of return shall be 2 times the monthly average rate as published in Standard and Poor's Bond Guide for the first month of the annual deduction period and shall be effective during the following deduction period. The rate shall be redetermined annually at the beginning of the same month beginning the annual deduction period chosen pursuant to paragraph (b)(1) of this section.

(3) Transmission-line cost rates, determined annually, are computed by dividing the sum of the operating, maintenance, overhead, and capital costs by the annual amount of delivered electricity.

(4) For new transmission lines, the lessee's costs for the first deduction period shall be based on estimated expenses (including overhead) for operating and maintaining the transmission line. For subsequent deduction periods, the transmission line costs shall be estimated based on the lessee's actual operating and maintenance expenses for the previous period adjusted for decreases or increases that the lessee knows will affect the deduction in the current period.

(c) Under no circumstances shall the transmission deduction plus the generating deduction determined pursuant to § 206.354 of this subpart reduce the royalty value of the geothermal resource to zero.

(d)(1) If the actual transmission deduction determined at the end of the annual reporting period is less than the amount the lessee estimated and used in the netback procedure during the reporting period, the lessee shall be required to pay additional royalties retroactive to the first month of the reporting period, plus interest computed pursuant to 30 CFR 218.302. If the actual transmission deduction is greater than the amount applied in the netback calculation, the lessee shall be entitled to a credit.

(2) Lessees must submit corrected Forms MMS-2014 to reflect adjustments to royalty payments in accordance with MMS instructions.

(e)(1) All transmission deductions are subject to review, audit, and adjustment. When necessary or appropriate, MMS may direct a lessee to modify its estimated or actual transmission deduction and adjust royalty values accordingly.

(2) Pursuant to subpart H of 30 CFR part 212, the lessee must maintain all data and records supporting its transmission deduction, including wheeling and other transmission-related agreements. These data and records must be made available to MMS and other authorized personnel upon request, and shall be maintained in a confidential manner in accordance with applicable laws and regulations pursuant to § 206.352 of this subpart.

(f) A one-time refund of royalties equal to the royalty amount of actual dismantlement costs attributable to the transmission line that are in excess of actual income attributable to the salvage of the transmission line will be allowed at the completion of the dismantlement and salvage operations.

§ 206.354 Determination of generating deductions.

(a) Where the value of geothermal energy is determined by the geothermal netback procedure pursuant to paragraphs (c)(1)(ii) and (d)(1)(ii) of § 206.352 of this subpart, that value shall be determined by deducting the lessee's reasonable actual costs incurred to generate electricity from the plant tailgate value of the electricity (usually the transmission-reduced value of the delivered electricity). Generating deductions are subject to the limitation prescribed in paragraph (c) of this section.

(b)(1) Generating costs shall be based on the lessee's actual annual costs associated with the construction and operation of a geothermal powerplant. The monthly generating deduction is determined by multiplying the annual generating cost rate (in dollars per kilowatthour) by the amount of plant tailgate electricity measured (or computed) for the reporting month. The generating cost rate is determined from the annual amount of plant tailgate electricity and must be redetermined annually at the beginning of the same month of the year in which the powerplant was placed into service or, at the lessee's option, at a time concurrent with the beginning of the lessee's annual corporate accounting period; *Provided*, however, the period selected must coincide with the same period chosen for the transmission deduction pursuant to § 206.353(b)(1). After a deduction period is chosen, the lessee may not later elect to use a different deduction period without MMS approval.

(2) Allowable generating costs include operating and maintenance expenses, overhead, and either depreciation and a return on undepreciated capital investment in accordance with paragraph (b)(2)(iv)(A) of this section, or a cost equal to the capital investment in the powerplant multiplied by a rate of return in accordance with paragraph (b)(2)(iv)(B) of this section. Allowable capital costs are generally those costs for depreciable assets, including costs of delivery and installation of capital equipment, that are an integral part of the powerplant or are required by the design specifications of the power conversion cycle. A return on capital invested in the purchase of real estate for a powerplant site may be allowed provided that the lessee demonstrates the necessity for such purchase, the purchased land is not on a Federal geothermal lease, and MMS approves the deduction; the rate of return shall be the same rate determined in paragraph (b)(2)(v) of this section. The costs of gathering systems and other production-related facilities are not allowed.

(i) Allowable operating expenses include operations supervision and

engineering, operations labor, materials, ad valorem property taxes, rent, supplies, auxiliary fuel and/or utilities used to operate the powerplant during down time, and any other directly allocable and attributable operating expense that the lessee can document.

(ii) Allowable maintenance expenses include maintenance of the powerplant, maintenance of equipment, maintenance labor, and other directly allocable and attributable maintenance expenses that the lessee can document.

(iii) Overhead directly attributable and allocable to the operation and maintenance of the powerplant is an allowable expense. State and Federal income taxes and severance taxes, including royalties, are not allowable expenses.

(iv) To compute costs associated with capital investment, a lessee may use either depreciation with a return on undepreciated capital investment, or a return on capital investment. After a lessee has elected to use either method, the lessee may not later elect to change to the other alternative without MMS approval.

(A) To compute depreciation , the lessee must use a straight-line depreciation method based on the life of the geothermal project, usually the term of the electricity sales contract or other depreciation period acceptable to MMS. A change in ownership of a powerplant shall not alter the depreciation schedule established by the original lessee-owner for computing the generating costs. With or without a change in ownership, a powerplant shall be depreciated only once. The rate of return used to compute the return on undepreciated capital investment shall be determined pursuant to paragraph (b)(2)(v) of this section.

(B) To compute a return on capital investment, the allowed cost shall be the amount equal to the allowable capital investment in the powerplant multiplied by the rate of return determined pursuant to paragraph (b)(2)(v) of this section. No allowance shall be provided for depreciation. This alternative shall apply only to powerplants first placed into service on or after March 1, 1988.

(v) The rate of return shall be 2 times Standard and Poor's industrial BBB bond rate. The rate of return shall be 2 times the monthly average rate as published in Standard and Poor's Bond Guide for the first month of the annual deduction period and shall be effective during the following deduction period. The rate shall be redetermined annually at the beginning of the same month beginning the annual deduction period chosen pursuant to paragraph (b)(1) of this section.

(3) Generating cost rates, determined annually, shall be computed by dividing the sum of the operating, maintenance, overhead, and capital costs by the annual amount of plant tailgate electricity.

(4) For new powerplants, the lessee's generating costs for the first deduction period shall be based on estimated expenses (including overhead) for operating and maintaining the powerplant. For subsequent deduction periods, the generating costs shall be estimated based on the lessee's actual operating and maintenance expenses for the previous period adjusted for decreases or increases that the lessee knows will affect the deduction in the current period.

(c) Under no circumstances shall the generating deduction plus the transmission deduction determined pursuant to § 206.353 of this subpart reduce the royalty value of the geothermal resource to zero.

(d)(1) If the actual generating deduction determined at the end of the annual reporting period is less than the amount the lessee estimated and used in the netback procedure during the reporting period, the lessee shall be required to pay additional royalties retroactive to the first month of the reporting period, plus interest computed pursuant to 30 CFR 218.302. If the actual generating deduction is greater than the amount applied in the netback calculation, the lessee shall be entitled to a credit.

(2) Lessees must submit corrected Forms MMS–2014 to reflect adjustments to royalty payments in accordance with MMS instructions.

(e)(1) All generating deductions are subject to review, audit, and adjustment. When necessary or appropriate, MMS may direct a lessee to modify its estimated or actual generating deduction and adjust royalty values accordingly.

(2) Pursuant to subpart H of 30 CFR part 212, the lessee must maintain all data and records supporting its generating deduction. These data and records must be made available to MMS and other authorized personnel upon request, and shall be maintained in a confidential manner in accordance with applicable laws and regulations pursuant to § 206.352 of this subpart.

(f) A one-time refund of royalties equal to the royalty amount of actual dismantlement costs attributable to the powerplant that are in excess of actual income attributable to the salvage of the powerplant will be allowed at the completion of the dismantlement and salvage operations.

§ 206.355 Valuation standards for direct utilization.

(a) The value of geothermal resources produced for leases subject to this subpart and used in direct utilization processes shall be determined pursuant to this section.

(b)(1)(i) The value of geothermal resources that are sold pursuant to an arm's-length contract shall be the gross proceeds accruing to the lessee, except as provided in paragraphs (b)(1)(ii) and (b)(1)(iii) of this section. The lessee shall have the burden of demonstrating that its contract is arm's-length. The value that the lessee reports for royalty purposes is subject to monitoring, review, and audit.

(ii) In conducting these reviews and audits, MMS will examine whether or not the contract reflects the total consideration actually transferred either directly or indirectly from the buyer to the seller for the geothermal resource. If the contract does not reflect the total consideration, MMS may require that the geothermal resource sold pursuant to that contract be valued in accordance with paragraph (d) of this section. Value shall not be less than the gross proceeds accruing to the lessee, including any additional consideration received.

(iii) If MMS determines that the gross proceeds accruing to the lessee pursuant to an arm's-length contract do not reflect the reasonable value of the geothermal resource because of misconduct by or between the contracting parties, or because the lessee otherwise has breached its duty to the lessor to market the production for the mutual benefit of the lessee and the lessor, MMS shall require the geothermal resource to be valued pursuant to paragraph (d) of this section and in accordance with the notification requirements of paragraph (e) of this section. When MMS determines that the value may be unreasonable, MMS will notify the lessee and give the lessee an opportunity to provide written information justifying the lessee's value.

(2) The MMS may require a lessee to certify that its arm's-length contract provisions include all of the consideration to be paid by the buyer, either directly or indirectly, for the geothermal resource.

(c)(1) The value of geothermal resources subject to this section that are sold under a non-arm's-length contract shall be determined in accordance with the first applicable of the following paragraphs:

(i) The gross proceeds accruing to the lessee pursuant to a sale under its non-arm's-length contract provided that those gross proceeds are not less than

the gross proceeds derived from or paid under the lowest-priced available comparable arm's-length contract for sales of geothermal resources to the lessee-affiliate's same direct utilization facility (the "minimum value"). If the gross proceeds under the lessee's non-arm's-length contract are less than the "minimum value" under available comparable arm's-length contracts, or if there are no available comparable arm's-length contracts, value will be determined by the weighted average of the gross proceeds established under arm's-length contracts for the sale of significant quantities of geothermal resources to the same direct utilization facility. Available contracts will mean contracts in the possession of the lessee, the lessee's affiliate, or MMS. In evaluating the comparability of arm's-length contracts for the purposes of these regulations, the following factors shall be considered: Time of execution, duration, terms, quality of the geothermal resource, volume, dedication to the same direct utilization facility, and other factors that may be appropriate to reflect the value of the resource;

(ii) The equivalent value of the least expensive, reasonable alternative energy source (fuel). The equivalent value of the least expensive, reasonable alternative energy source shall be based on the amount of thermal energy that would otherwise be used by the direct utilization process in place of the geothermal resource. That amount of thermal energy (in Btu's) displaced by the geothermal resource shall be determined by the equation

$$\text{thermal energy displaced} = \frac{(h_{in} - h_{out}) \times \text{density} \times 0.133681 \times \text{volume}}{\text{efficiency factor}}$$

Where h_{in} is the enthalpy in Btu's/lb at the utilization facility inlet (based on measured inlet temperature), h_{out} is the enthalpy in Btu's/lb at the facility outlet (based on measured outlet temperature), density is in lbs/cu ft based on inlet temperature, the factor 0.133681 (cu ft/gal) converts gallons to cubic feet, and volume is the quantity of geothermal fluid in gallons produced at the wellhead or measured at an approved point. The efficiency of the alternative energy source shall be 0.7 for coal and 0.8 for oil, natural gas, and other fuels derived from oil and natural gas, or an efficiency factor proposed by the lessee and approved by MMS. The methods of measuring resource parameters (temperature, volume, etc.) and the frequency of computing and accumulating the amount of thermal energy displaced shall be determined and approved by BLM; or

(iii) A value determined by any other reasonable valuation method approved by MMS.

(2) Valuations made pursuant to this paragraph are subject to the notification requirements of paragraph (e) of this section.

(d)(1) The value of geothermal resources subject to this section that are not subject to a sales transaction but are instead used by the lessee in its own direct utilization facility ("no sales" geothermal resources) shall be determined in accordance with the first applicable of the following paragraphs:

(i) The weighted average of the gross proceeds established in arm's-length contracts for the purchase of significant quantities of geothermal resources to operate the lessee's same direct utilization facility. In evaluating the acceptability of arm's-length contracts, the following factors shall be considered: Time of execution, duration, terms, volume, quality of resource, and such other factors as may be appropriate to reflect the value of the resource;

(ii) The equivalent value of the least expensive, reasonable alternative energy source (fuel). The equivalent value of the least expensive, reasonable alternative energy source shall be based on the amount of thermal energy that would otherwise be used by the direct utilization process in place of the geothermal resource. That amount of thermal energy (in Btu's) displaced by the geothermal resource shall be determined by the equation

$$\text{thermal energy displaced} = \frac{(h_{in} - h_{out}) \times \text{density} \times 0.133681 \times \text{volume}}{\text{efficiency factor}}$$

Where h_{in} is the enthalpy in Btu's/lb at the utilization facility inlet (based on measured inlet temperature), h_{out} is the enthalpy in Btu's/lb at the facility outlet (based on measured outlet temperature), density is in lbs/cu ft based on inlet temperature, the factor 0.133681 (cu ft/gal) converts gallons to cubic feet, and volume is the quantity of geothermal fluid in gallons produced at the wellhead or measured at an approved point. The efficiency of the alternative energy source shall be 0.7 for coal and 0.8 for oil, natural gas, and other fuels derived from oil and natural gas, or an efficiency factor proposed by the lessee and approved by MMS. The methods of measuring resource parameters (temperature, volume, etc.) and the frequency of computing and accumulating the amount of thermal energy displaced shall be determined and approved by BLM; or

(iii) A value determined by any other reasonable valuation method approved by MMS.

(2) Valuations made pursuant to this paragraph are subject to the notification requirements of paragraph (e) of this section.

(e)(1) Pursuant to subpart H of 30 CFR part 212, the lessee shall retain all data relevant to the determination of royalty value, particularly where the value is determined pursuant to paragraph (c) or (d) of this section. Such data shall be subject to review and audit, and MMS will direct a lessee to use a different value if it determines that the reported value is inconsistent with the requirements of these regulations.

(2) Upon request, lessees shall make available to authorized MMS representatives or to other authorized persons any and all contracts for the sale or other disposition of the lease production, and any arm's-length sales and other data for like-quality production sold, purchased, or otherwise obtained by the lessee from the field as may be necessary to support a value determination.

(3) A lessee shall notify MMS if it has determined value pursuant to paragraph (c) or (d) of this section. The notification shall be by letter to the MMS Associate Director for Royalty Management or his/her designee. The letter shall identify the valuation method to be used and contain a brief description of the procedure to be followed. The notification required by this paragraph is a one-time notification due no later than the end of the month following the month the lessee first reports royalties

on a Form MMS–2014 using a valuation method authorized by paragraph (c) or (d) of this section.

(f) If MMS determines that a lessee has not properly determined value, the lessee shall pay the difference, if any, between royalty payments made based upon the value it has used and the royalty payments that are due based upon the value established by MMS. The lessee shall also pay interest on that difference computed pursuant to 30 CFR 218.302. If the lessee is entitled to a credit, MMS will provide instructions for the taking of that credit.

(g) The lessee may request a value determination from MMS. In that event, the lessee shall propose to MMS a value determination method and may use that method in determining value, for royalty purposes, until MMS issues its decision. The lessee shall submit all available data relevant to its proposal. The MMS shall expeditiously determine the value based upon the lessee's proposal and any additional information MMS deems necessary. In making a value determination, MMS may use any of the valuation criteria consistent with this subpart. That determination shall remain effective for the period stated therein. After MMS issues its determination, the lessee shall make adjustments in accordance with paragraph (f) of this section.

(h) Notwithstanding any other provision of this section, under no circumstances shall the value of production, for royalty purposes, be less than the gross proceeds accruing to the lessee where geothermal energy is directly sold.

(i) The lessee is required to place geothermal resources in marketable condition and to deliver geothermal resources to the direct utilization facility at no cost to the Federal lessor. Where the value established pursuant to this section is determined by a lessee's gross proceeds, that value shall be increased to the extent that the gross proceeds have been reduced because the purchaser, or any other person, is providing certain services the cost of which ordinarily is the responsibility of the lessee to place the geothermal resource in marketable condition or to deliver it to the direct utilization facility.

(j) Value shall be based on the highest price a prudent lessee can receive through legally enforceable claims under its contract. Absent contract revision or amendment, if the lessee fails to take proper or timely action to receive prices or benefits to which it is entitled, it must pay royalty at a value based upon that obtainable price or benefit. Contract revisions or amendments shall be in writing and signed by all parties to the contract. If the lessee makes timely application for a price increase or benefit allowed under its contract but the purchaser refuses and the lessee takes reasonable measures, which are documented, to force purchaser compliance, the lessee shall owe no additional royalties unless or until monies or consideration resulting from the price increase or additional benefits are received. This paragraph shall not be construed to permit a lessee to avoid its royalty payment obligation in situations where a purchaser fails to pay, in whole or in part or timely, for a quantity of geothermal resources.

(k) Notwithstanding any provision in these regulations to the contrary, no review, reconciliation, monitoring, or other like process that results in a redetermination by MMS of value under this section shall be considered final or binding against the Federal Government or its beneficiaries until the audit period is formally closed.

(l) Certain information submitted to MMS to support value determinations is exempted from disclosure by the Freedom of Information Act, 5 U.S.C. 552, or other Federal law. Any data specified by law to be privileged, confidential, or otherwise exempt will be maintained in a confidential manner in accordance with applicable laws and regulations. All requests for information about determinations made under this subpart are to be submitted in accordance with the Freedom of Information Act regulation of the Department, 43 CFR part 2.

§ 206.356 Valuation standards for byproducts.

(a) The value of geothermal byproducts, including commercially demineralized water, shall be determined pursuant to this section, less applicable byproducts transportation allowances determined pursuant to §§ 206.357 and 206.358 of this subpart.

(b)(1)(i) The value of byproducts that are sold pursuant to an arm's-length contract shall be the gross proceeds accruing to the lessee, except as provided in paragraphs (b)(1)(ii) and (b)(1)(iii) of this section. The lessee shall have the burden of demonstrating that its contract is arm's-length. The value that the lessee reports for royalty purposes is subject to monitoring, review, and audit.

(ii) In conducting reviews and audits, MMS will examine whether the contract reflects the total consideration actually transferred, either directly or indirectly, from the buyer to the seller for the byproducts. If the contract does not reflect the total consideration, MMS may require that the byproducts sold pursuant to that contract be valued in accordance with paragraph (c) of this section. Value may not be less than the gross proceeds accruing to the lessee, including any additional consideration received.

(iii) If MMS determines that the gross proceeds accruing to the lessee pursuant to an arm's-length contract do not reflect the reasonable value of the production because of misconduct by or between the contracting parties, or because the lessee otherwise has breached its duty to the lessor to market the production for the mutual benefit of the lessee and the lessor, MMS shall require that the byproduct production be valued pursuant to paragraph (c) of this section and in accordance with the notification requirements of paragraph (d) of this section. If MMS determines that the value may be unreasonable, MMS will notify the lessee and give the lessee an opportunity to provide written information justifying the lessee's reported byproduct value.

(2) The MMS may require a lessee to certify that the provisions in its arm's-length contract include all of the consideration to be paid by the buyer, either directly or indirectly, for the byproduct.

(c) The value of byproducts that are sold pursuant to a non-arm's-length contract or that are utilized by the lessee (no sales), except demineralized water used for the benefit of the lease pursuant to paragraph (b)(2) of § 202.351 of this subpart, shall be determined in accordance with the first applicable of the following paragraphs:

(1) The gross proceeds accruing to the lessee pursuant to a sale under its non arm's-length contract (or other disposition by other than an arm's-length contract), provided that those gross proceeds are not less than the gross proceeds derived from or paid under the lowest-priced available comparable arm's-length contract for sales, purchases, or other dispositions of like-quality byproducts in the field or, if necessary to obtain a representative sample, from the same area (the "minimum value"). If the gross proceeds under the lessee's non-arm's-length contract are less than the "minimum value" under available comparable arms length contracts, or if there are no available comparable arm's-length contracts, value will be determined by the weighted average of the gross proceeds established under arm's-length contracts for the sale of like-quality products in the field or, if necessary to obtain a representative sample, from the same area. Available contracts will mean contracts in the possession of the

lessee, the lessee's affiliate, or MMS. In evaluating the comparability of arm's-length contracts for the purposes of these regulations, the following factors shall be considered: Field or area, price, time of execution, duration, terms, quality of the byproduct, volume, market or markets served, and other factors that may be appropriate to reflect the value of the byproduct;

(2) Other relevant matters including, but not limited to, published or publicly available spot-market prices, or information submitted by the lessee concerning circumstances unique to a particular lease operation or the saleability of certain byproducts; or

(3) A netback method or any other reasonable method used to determine value.

(d)(1) Pursuant to subpart H of 30 CFR part 212, the lessee shall retain all data relevant to the determination of royalty value, particularly where the value is determined pursuant to paragraph (c) of this section. Such data shall be subject to review and audit, and MMS will direct a lessee to use a different value if it determines that the reported value is inconsistent with the requirements of these regulations.

(2) Upon request, lessees shall make available to authorized MMS representatives or to other authorized persons any and all contracts and/or invoices for the sale or other disposition of the byproducts, and any arm's-length sales and other data for like-quality production sold, purchased, or otherwise obtained by the lessee from the field or other area as may be necessary to support a value determination.

(3) A lessee shall notify MMS if it has determined value pursuant to paragraph (c) of this section. The notification shall be by letter to the MMS Associate Director for Royalty Management or his/her designee. The letter shall identify the valuation method to be used and contain a brief description of the procedure to be followed. The notification required by this paragraph is a one-time notification due no later than the end of the month following the month the lessee first reports royalties on a Form MMS–2014 using a valuation method authorized by paragraph (c) of this section, and each time there is a change in a method under paragraph (c) of this section.

(e) If MMS determines that a lessee has not properly determined value, the lessee shall pay the difference, if any, between royalty payments made based upon the value it has used and the royalty payments that are due based upon the value established by MMS. The lessee shall also pay interest on that difference computed pursuant to 30 CFR 218.302. If the lessee is entitled to a credit, MMS will provide instructions for the taking of that credit.

(f) The lessee may request a value determination from MMS. In that event, the lessee shall propose to MMS a value determination method and may use that method in determining value, for royalty purposes, until MMS issues its decision. The lessee shall submit all available data relevant to its proposal. The MMS shall expeditiously determine the value based upon the lessee's proposal and any additional information MMS deems necessary. In making a value determination, MMS may use any of the valuation criteria consistent with this subpart. That determination shall remain effective for the period stated therein. After MMS issues its determination, the lessee shall make the adjustments in accordance with paragraph (c) of this section.

(g) Notwithstanding any other provisions of the section, under no circumstances shall the value of byproducts for royalty purposes be less than the gross proceeds accruing to the lessee, less applicable byproduct transportation allowances determined pursuant to §§ 206.357 and 206.358 of this subpart.

(h) The lessee is required to place the byproducts in marketable condition at no cost to the Federal Government. Where the value established pursuant to this section is determined by a lessee's gross proceeds, that value shall be increased to the extent that the gross proceeds have been reduced because the purchaser, or any other person, is providing certain services the cost of which ordinarily is the responsibility of the lessee to place the byproducts in marketable condition.

(i) Value shall be based on the highest price a prudent lessee can receive through legally enforceable claims under its contract. Absent contract revision or amendment, if the lessee fails to take proper or timely action to receive prices or benefits to which it is entitled, it must pay royalty at a value based upon that obtainable price or benefit. Contract revisions or amendments shall be in writing and signed by all parties to the contract, and may be retroactively applied to value byproducts, for royalty purposes, for a period not to exceed 2 years, unless MMS approves a longer period. If the lessee makes timely application for a price increase allowed under its contract but the purchaser refuses and the lessee takes reasonable measures, which are documented, to force purchaser compliance, the lessee will owe no additional royalties unless or until monies or consideration resulting from the price increase are received. This paragraph shall not be construed to permit a lessee to avoid its royalty payment obligation in situations where a purchaser fails to pay, in whole or in part or timely, for a quantity of byproducts.

(j) Notwithstanding any provision in these regulations to the contrary, no review, reconciliation, monitoring, or other like process that results in a redetermination by MMS of value under this section shall be considered final or binding against the Federal Government or its beneficiaries until the audit period is formally closed.

(k) Certain information submitted to MMS to support valuation proposals, including byproduct transportation allowances pursuant to §§ 206.357 and 206.358 of this subpart, is exempted from disclosure by the Freedom of Information Act, 5 U.S.C. 552. Any data specified by the act to be privileged, confidential, or otherwise exempt shall be maintained in a confidential manner in accordance with applicable laws and regulations. All requests for information about determinations made under this subpart are to be submitted in accordance with the Freedom of Information Act regulation of the Department, 43 CFR part 2.

§ 206.357 Byproduct transportation allowances—general.

(a) Where the value of byproducts has been determined at a point off the geothermal lease, unit, or participating area, MMS shall allow a deduction in determining value, for royalty purposes, for the lessee's reasonable, actual costs incurred to:

(1) Transport the byproducts from a Federal lease, unit, or participating area to a sales point or point of delivery that is off the lease, unit, or participating area; or

(2) Transport the byproducts from a Federal lease, unit, or participating area, or from a geothermal utilization facility to a byproduct recovery facility when that byproduct recovery facility is off the lease, unit, or participating area and, if applicable, from the recovery facility to a sales point or point of delivery off the lease, unit, or participating area. Costs for transporting geothermal fluids from the lease to the geothermal utilization facility, whether on or off the lease, shall not be included in the transportation allowance.

(b) Under no circumstances shall the byproduct transportation allowance authorized by paragraph (a) of this section reduce the value of the byproducts under any selling arrangement to zero.

(c)(1) When byproducts are transported from a lease, unit, participating area, or geothermal utilization facility to a byproduct recovery facility, the lessee is not required to allocate transportation costs between the quantity of marketable byproducts and the rejected waste material. The byproduct transportation allowance shall be authorized for the total production that is transported. Byproduct transportation allowances shall be expressed as a cost per unit of marketable byproducts transported.

(2) For byproducts that are extracted on the lease, unit, or participating area, or at the geothermal utilization facility, the byproduct transportation allowance shall be authorized for the total production that is transported to a point of sale off the lease, unit, or participating area. Byproduct transportation allowances shall be expressed as a cost per unit of byproduct transported.

(3) Transportation costs shall be authorized as allowances only when the transported byproduct is sold, delivered, or otherwise utilized by the lessee and royalties are reported and paid.

(d) Byproduct transportation allowances are subject to monitoring, review, and audit. If, after a review and/or audit, MMS determines that a lessee has improperly determined a byproduct transportation allowance authorized by this section, then the lessee shall pay any additional royalties plus interest determined in accordance with 30 CFR 218.302, or shall be entitled to a credit without interest.

(e) If byproducts produced from Federal and non-Federal leases are commingled for transportation, lessees shall not disproportionately allocate transportation costs to Federal lease production.

(f) Upon request, the lessee shall make available to authorized MMS representatives or to other authorized persons all transportation contracts and all other information as may be necessary to support a byproduct transportation allowance.

(g) Byproduct transportation allowances are to be reported as separate lines on Form MMS–2014.

§ 206.358 Determination of byproduct transportation allowances.

(a) *Arm's-length contracts.* (1) For transportation costs incurred by a lessee pursuant to an arm's-length contract, the transportation allowance shall be the reasonable, actual costs incurred by the lessee for transporting the byproducts under that contract, subject to monitoring, review, audit, and possible future adjustments. The MMS's prior approval is not required before a lessee may deduct costs incurred under an arm's-length transportation contract.

(2) In conducting reviews and audits, MMS will examine whether the contract reflects more than the consideration actually transferred either directly or indirectly from the lessee to the transporter for the transportation. If the contract reflects more than the total consideration paid, MMS may require that the byproduct transportation allowance be determined in accordance with paragraph (b) of this section.

(3) If MMS determines that the consideration paid pursuant to an arm's-length byproduct transportation contract does not reflect the reasonable value of the transportation because of misconduct by or between the contracting parties, or because the lessee otherwise has breached its duty to the lessor to market the production for the mutual benefit of the lessee and the lessor, MMS shall require that the byproduct transportation allowance be determined in accordance with paragraph (b) of this section. When MMS determines that the value of the transportation may be unreasonable, MMS will notify the lessee and give the lessee an opportunity to provide written information justifying the lessee's transportation costs.

(4) Where the lessee's payments for transportation under an arm's-length contract are not established on a dollars-per-unit basis, the lessee shall convert whatever consideration is paid to a dollar value equivalent for the purposes of this section.

(b) *Non-arm's-length or no contract.* (1) If a lessee has a non-arm's-length transportation contract or has no contract, including those situations where the lessee performs transportation services for itself, the byproduct transportation allowance shall be based upon the lessee's reasonable actual costs. All byproduct transportation allowances deducted under a non-arm's-length or no-contract situation are subject to monitoring, review, audit, and possible future adjustment. Prior MMS approval of byproduct transportation allowances is not required for non-arm's-length or no-contract situations.

(2) The byproduct transportation allowance for non-arm's-length or no-contract situations shall be based upon the lessee's actual costs for transportation during the reporting period, including operating and maintenance expenses, overhead, and either depreciation and a return on undepreciated capital investment in accordance with paragraph (b)(2)(iv)(A) of this section, or a cost equal to the capital investment in the transportation system multiplied by the rate of return in accordance with paragraph (b)(2)(iv)(B) of this section. Allowable capital costs are generally those for depreciable assets, including costs of delivery and installation of capital equipment, that are an integral part of the transportation system. A return on capital invested in the purchase of real estate to locate the byproduct transportation facilities may be allowed provided that the lessee demonstrates the necessity for such purchase, the purchased land is not on a Federal geothermal lease, and MMS approves the deduction; the rate of return shall be the same rate determined in paragraph (b)(2)(v) of this section.

(i) Allowable operating expenses include operations supervision and engineering, operations labor, fuel, utilities, materials, ad valorem property taxes, rent, supplies, and any other allocable and attributable operating expenses that the lessee can document.

(ii) Allowable maintenance expenses include maintenance of the transportation system, maintenance of equipment, maintenance labor, and other directly allocable and attributable maintenance expenses that the lessee can document.

(iii) Overhead attributable and allocable to the operation and maintenance of the transportation system is an allowable expense. State and Federal income taxes and severance taxes and other fees, including royalties, are not allowable expenses.

(iv) To compute costs associated with capital investment, a lessee may use either paragraph (b)(2)(iv)(A) or (b)(2)(iv)(B) of this section. After a lessee has elected to use either method for a transportation system, the lessee may not later elect to change to the other alternative without MMS approval.

(A) To compute depreciation, the lessee must use a straight-line depreciation method based on, as appropriate, either the life of equipment or the life of the geothermal project that the transportation system services. After an election is made, the lessee may not change methods. A change in ownership of a transportation system shall not alter the depreciation schedule established by the original transporter/lessee for purposes of the allowance calculation. With or without a change in ownership, a transportation system shall be depreciated only once. Equipment shall not be depreciated below a reasonable salvage value. The rate of return used to compute the return on undepreciated

capital investment shall be determined pursuant to paragraph (b)(2)(v) of this section.

(B) To compute a return on capital investment, the allowed cost shall be the amount equal to the allowable capital investment in the transportation system multiplied by the rate of return determined pursuant to paragraph (b)(2)(v) of this section. No allowance shall be provided for depreciation.

(v) The rate of return shall be Standard and Poor's industrial BBB bond rate. The rate of return shall be the monthly average rate as published in *Standard and Poor's Bond Guide* for the first month of the annual reporting period for which the allowance is applicable and shall be effective during the reporting period. The rate shall be redetermined at the beginning of each subsequent transportation allowance reporting period.

PART 210—FORMS AND REPORTS

1. The authority citation for part 210 is revised to read as follows:

Authority: 5 U.S.C. 301 *et seq.*; 25 U.S.C. 396 *et seq.*; 25 U.S.C. 396a *et seq.*; 25 U.S.C. 2101 *et seq.*; 30 U.S.C. 181 *et seq.*; 30 U.S.C. 351 *et seq.*; 30 U.S.C. 1001 *et seq.*; 30 U.S.C. 1701 *et seq.*; 31 U.S.C. 9701; 43 U.S.C. 1301 *et seq.*; 43 U.S.C. 1331 *et seq.*; and 43 U.S.C. 1801 *et seq.*

2. Subpart H is amended by revising §§ 210.350 and 210.351 and by adding §§ 210.352 through 210.355 to read as follows:

Subpart H—Geothermal Resources

Sec.
210.350 Definitions.
210.351 Required recordkeeping.
210.352 Payor information forms.
210.353 Special forms and reports.
210.354 Monthly report of sales and royalty.
210.355 Reporting instructions.

Subpart H—Geothermal Resources

§ 210.350 Definitions.

Terms used in this subpart shall have the same meaning as in 30 CFR 206.351.

§ 210.351 Required recordkeeping.

Information required by MMS shall be filed using the forms prescribed in this subpart, which are available from MMS. Records may be maintained on microfilm, microfiche, or other recorded media that are easily reproducible and readable. See subpart H of 30 CFR part 212.

§ 210.352 Payor information forms.

The Payor Information Form (Form MMS–4025) must be filed for each Federal lease on which geothermal royalties (including byproduct royalties) are paid. Where specifically determined by MMS, Form MMS–4025 is also required for all Federal leases on which rent is due. The completed form must be filed by the party who is making the rent or royalty payment (payor) for each revenue source. Form MMS–4025 must be filed no later than 30 days after issuance of a new lease or a modification to an existing lease that changes the paying responsibility on the lease. The Form MMS–4025 shall identify the payor of production royalty, and identify revenue sources and selling arrangements for all leased geothermal resources (including byproducts). After filing the initial form, a new Form MMS–4025 must be filed no later than 30 days after the occurrence of any of the following:

(a) Assignment of all or any part of the lease;
(b) Production of new product;
(c) A change in a selling arrangement;
(d) Change in royalty rate;
(e) Change of payor; or
(f) Abandonment of a lease.

§ 210.353 Special forms and reports.

The MMS may require submission of additional information on special forms or reports. When special forms or reports other than those referred to in this subpart are necessary, MMS will give instructions for the filing of such forms or reports. Requests for the submission of such forms will be made in conformity with the requirements of the Paperwork Reduction Act of 1980 and other applicable laws.

§ 210.354 Monthly report of sales and royalty.

A completed Report of Sales and Royalty Remittance (Form MMS–2014) must be submitted each month once sales or utilization of production occur, even though sales may be intermittent, unless otherwise authorized by MMS. This report is due on or before the last day of the month following the month in which production was sold or utilized, together with the royalties due the United States.

§ 210.355 Reporting instructions.

(a) Specific guidance on how to prepare and submit required information collection reports and forms to MMS is contained in an MMS Oil and Gas Payor Handbook which is available from the Minerals Management Service, Royalty Management Program, Fiscal Accounting Division, P.O. Box 5760, Denver, Colorado 80217–5760.

(b) Royalty payors should refer to this handbook for specific guidance with respect to geothermal resources reporting requirements. If additional information is required, the payor should contact the MMS Lessee Contact Branch at the above address. The appropriate telephone numbers are listed in the handbook.

PART 212—RECORDS AND FILES MAINTENANCE

1. The authority citation for part 212 is revised to read as follows:

Authority: 5 U.S.C. 301 *et seq.*; 25 U.S.C. 396 *et seq.*; 25 U.S.C. 396a *et seq.*; 25 U.S.C. 2101 *et seq.*; 30 U.S.C. 181 *et seq.*; 30 U.S.C. 351 *et seq.*; 30 U.S.C. 1001 *et seq.*; 30 U.S.C. 1701 *et seq.*; 31 U.S.C. 9701; 43 U.S.C. 1301 *et seq.*; 43 U.S.C. 1331 *et seq.*; and 43 U.S.C. 1801 *et seq.*

2. Subpart B—Oil and Gas, General, is amended by removing the authority citation and by revising the title of the subpart to read as follows:

Subpart B—Oil, Gas, and OCS Sulfur—General

3. Subpart H, previously reserved, is amended by adding §§ 212.350 and 212.351 to read as follows:

Subpart H—Geothermal Resources

Sec.
212.350 Definitions.
212.351 Required recordkeeping and reports.

Subpart H—Geothermal Resources

§ 212.350 Definitions.

Terms used in this subpart shall have the same meaning as in 30 CFR 206.351.

§ 212.351 Required recordkeeping and reports.

(a) *Records.* Each lessee, operator, revenue payor, or other person shall make and retain accurate and complete records necessary to demonstrate that payments of royalties, rentals, and other amounts due under Federal geothermal leases are in compliance with laws, lease terms, regulations, and orders. Records covered by this section include those specified by lease terms, notices, and orders, and those identified in paragraph (c) of this section. Records also include computer programs, automated files, and supporting systems documentation used to produce automated reports or magnetic tapes submitted to MMS for use in its AFS, or in its Production Accounting and Auditing System.

(b) *Period for keeping records.* All records pertaining to Federal geothermal leases shall be maintained by a lessee, operator, revenue payor, or other person for 6 years after the records are generated unless the recordholder is notified, in writing, before the expiration of that 6-year period that records must be maintained for a longer period for purposes of audit or investigation. When an audit or investigation is underway,